

SOAP AND CHEMICAL SPECIALTIES



IN THIS ISSUE

**"Jenny" steam cleaner
bites soil harder...*thanks to*
SOLVAY LIQUID CAUSTIC POTASH**



In Homestead Valve Manufacturing Company's "Jenny"® a heavy-duty liquid detergent containing Solvay® Caustic Potash quickly makes sludge-laden metal come whistle-clean.

More reactive caustic potash helps produce more soluble reaction products and less viscous solutions.

Caustic potash in a heavy-duty liquid cleaning compound can provide a greater concentration in stock solutions to reduce make-up time in comparison with sodium based products.



SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N.Y.

SOLVAY branch offices and dealers are located in major centers from coast to coast.

Why not find out what Solvay Liquid Caustic Potash can mean in your formulations? Technical help, samples, and additional information are available for the asking.

SOLVAY PROCESS DIVISION

Allied Chemical Corporation
61 Broadway, New York 6, N.Y.

81-21

We are interested in caustic potash information.

Please send data on recommended formula for liquid cleanser to be used for _____

Please have representative call.

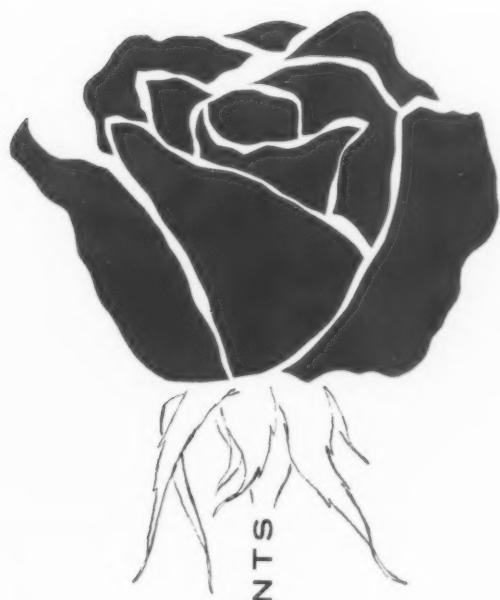
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MORE PROFITS for those who want to

- *sell the finest product money can buy for wax removal and surface cleaning*
- *save money on freight costs*
- *compound their own wax removers and surface cleaners*

CANDY'S BRIGHT BEAUTY WATER EMULSION WAX REMOVER ALL PURPOSE SURFACE CLEANER

THE COMPLETE CLEANER—READY TO USE FOR WAX REMOVAL		SURFACE CLEANING	
RATIO OF WATER TO CLEANER	OZS. CLEANER PER GAL. WATER	RATIO OF WATER TO CLEANER	OZS. CLEANER PER GAL. WATER
15/16% CONCENTRATE	10-1	13 oz.	50-1 to 30-1
11/12% CONCENTRATE	7-1	18 oz.	40-1 to 25-1

SPECIFICATIONS:

15/16% Concentrate is available in 55, 30 and 15 gal. drums, 5 gal. pails, and cartons of 4 one-gallon glass jugs. (Net weight 8.72 lbs. per gal.)

11/12% Concentrate is available in 55, 30 and 15 gal. drums, 5 gal. pails, and cartons of 4 one-gallon glass jugs. (Net weight 8.64 lbs. per gal.)

30/32% Concentrated Concentrate is available in part full packages for dilution to 11/12% and 15/16% concentrates. (Net weight, 9.12 lbs. per gal.)

46/48% Concentrated Concentrate is available only in full 55 gal. drums, (net weight 520 lbs., 9.4 lbs. per gal.).

CANDY'S DISTRIBUTION AND SALES POLICY

Our products are available for private brand re-sale and are sold only through Distributors except for experimental accounts in Chicago essential to research.

FOR THOSE WHO WANT TO COMPOUND THEIR OWN CLEANER

Two methods are available—(1) By purchasing 30/32% solid content concentrated concentrate in part full containers, you need add only water and agitate containers by rolling and stirring contents. (2) By purchasing 46/48% solid content concentrated concentrate, you add water only in suitable mixing equipment to produce the retail package of the solid content percentage you desire. The charts below show compounding results for our recommended retail solid content percentages. Remember, you pay freight only on the 520 lbs. (net weight) of 46/48% cleaner and save the cost of shipping the water you add when you do your own compounding.

TO COMPOUND 15/16% CONCENTRATED CLEANER

WE SHIP BY AIR, SEA, LAND **YOU ADD**

YOU SELL



1 DRUM (520 LBS.) 46/48%
CONCENTRATED CONCENTRATE + 2 1/4 DRUMS WATER = 3 1/4 DRUMS (178 1/4 GAL.) 15/16% CONCENTRATE

TO COMPOUND 11/12% CONCENTRATED CLEANER

WE SHIP to you **YOU**

YOU SELL



1 DRUM (520 LBS.) 46/48% CONCENTRATED CONCENTRATE + 3 1/2 DRUMS WATER = 4 1/2 DRUMS (240 GAL.) 11/12% CONCENTRATE

WAX SPECIALISTS FOR OVER 60 YEARS

Candy & Company, Inc.

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2515 WEST 35TH STREET, CHICAGO 32, ILLINOIS

Cover photo: The new president of the Soap Association, John M. Hoe Ney, has had an unconventional career in the soap industry. He started out in the synthetic detergent field and wound up marketing soap products. Presently general manager of the Armour Soap Division, he assumed this post in 1957. He joined Armour and Co. as director of sales for the Chemical Division in 1953, becoming general manager two years later. Earlier, he had been with Atlantic Refining Co., Philadelphia, for 20 years originally as a chemist working on developing detergents from petroleum. Later he did market research, technical service and detergent raw materials sales work.

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Published monthly by
MAC NAIR-DORLAND COMPANY, Inc.

IRA P. MAC NAIR
President

GRANT A. DORLAND
Vice-President and Treasurer

Publication Office
254 W. 31st St., New York 1, N. Y.
Telephone Bryant 9-4456

Chicago Office
612 N. Michigan Ave.

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SOAP AND CHEMICAL SPECIALTIES



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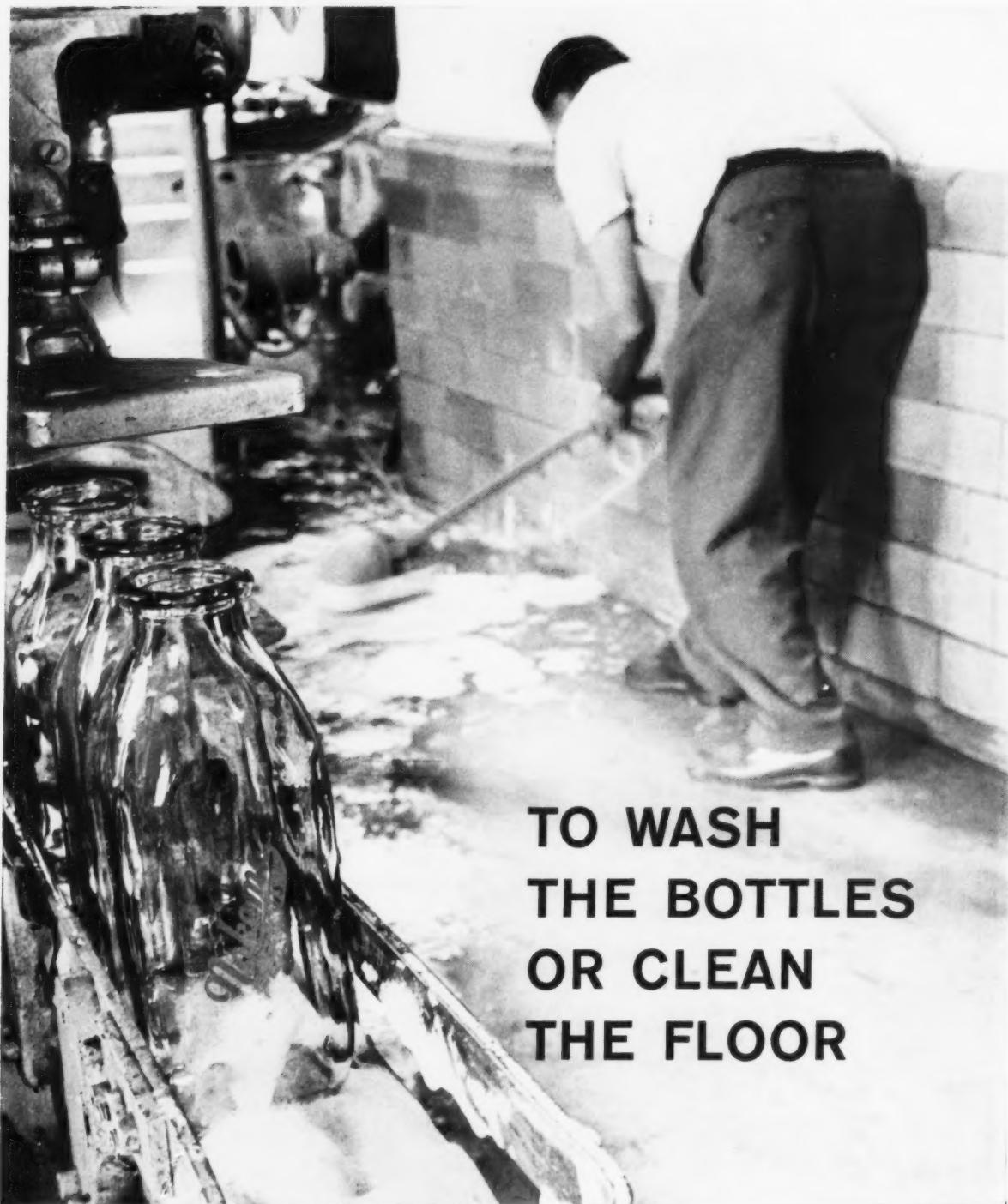
SINCE 1934

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Subscription rates: U. S., \$4.00 per year; Canadian, \$5.00; Foreign, \$11.00 (two years only). Copy closing dates—15th of month preceding month of issue for reading matter; 10th of month preceding month of issue for display advertising.

Single copies: Current issues, 50¢; all back issues, \$1.00. Claims for missing copies must be received within 60 days of mailing date. Second class postage paid at New York, N. Y., and at Baltimore, Md.



TO WASH THE BOTTLES OR CLEAN THE FLOOR

The most consistently dependable cleaning agents are those made with Hooker phosphates. High purity is one reason. (Our sodium tripolyphosphate is 98% pure, highest in the industry.) Because of this purity, you can get more of the active sequestering agent into your product.

Typical assay of Hooker phosphates: disodium phosphate (99%); sodium tripolyphosphate (98%) and tetra-potassium pyrophosphate (95.5%). Also available are sodium hexametaphosphate (P_2O_5 content 67%) and

trisodium phosphate (P_2O_5 content 18.6%).

Write for data sheets and price information on these phosphate products. Available from three locations: Jeffersonville, Indiana; Adams, Mass.; Dallas, Texas.

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Jeffersonville, Indiana

Sales offices: Chicago, Ill. • New York, N. Y.



SOAP and CHEMICAL SPECIALTIES

NOW... a new surfactant molecule to give you the balanced best of two outstanding surfactant classes



The new Stepan Amidox series offers excellent potential for use in detergents, shampoos, emulsions and other systems. Consisting of a series of ethoxylated alkylolamides, this whole new group of surfactants combines the advantageous characteristics of both alkylolamides and phenol polyglycol ether nonionics. The series ranges from a predominantly alkylolamide character to a predominantly nonionic character as increasing amounts of ethylene oxide are added to the amide. Thus, in varying degrees the foam boosting, viscosity building properties and the relative mildness of the alkylolamide is combined with the superior solubility in hard water and alkaline stability of the nonionics.

The Amidox L series are ethylene oxide condensates of lauric monoethanolamides. The Amidox C series are ethoxylated coconut fatty acid monoethanolamines.

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Warehouses: Joliet, Ill.; Maywood, N. J.; Atlanta, Ga.; Tampa, Fla.; St. Louis, Mo.; Dallas, Tex.; Los Angeles, Calif.; San Francisco, Calif.

Canada: Charles Tennant & Company (Canada) Limited, Toronto, Montreal, Vancouver.

Export: Agents in principal cities throughout the world.



Rinse additive ends spotting after commercial dishwashing

ROHM & HAAS COMPANY, Sanitary Chemicals Dept.
Washington Square, Philadelphia 5, Pa.

Please send me complete information on:

- TRITON CF-10 rinse additive defoamer
- TRITON CF-32 low foaming detergent
- Have a representative call

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Both plates above were machine-washed with a well-known detergent. The plate on the right, however, received a final rinse with TRITON® CF-10. Notice that it is spot-free as it leaves the rinse water. This plate will also drain and dry faster, sparkling bright for direct transfer to the table. There's another bonus benefit for restaurant managers who use TRITON CF-10. Foaming is practically eliminated during subsequent washing cycles by the TRITON CF-10 remaining in the reused rinse water. A list of additional advantages and complete data can be yours by mailing the coupon on the left.

TRITON CF-10

SOAP and CHEMICAL SPECIALTIES



Commercial dishwashing compound



Compound plus TRITON CF-32

Defoaming detergent improves machine dishwashing

Both solutions above contain machine dishwashing compound and standard food soil, but the one at right also contains TRITON CF-32. The defoaming action of the TRITON® CF-32 added to the detergent in the tank at right is immediately apparent. As a result, table and kitchenware machine-washed in TRITON CF-32 formulations come out clean, with a minimum of spotting, ready for immediate table use. Conventional compounds may develop foam in the presence of food soils after a few minutes of agitation, reducing dishwashing efficiency. In machine dishwashing with conventional builders formulated with TRITON CF-32,

glasses, cups, dishes, silverware, pots and pans rinse sparkling clean. Make your own defoaming test with TRITON CF-32. Mail the coupon on opposite page for complete formulating information.

**ROHM
&
HAAS**
PHILADELPHIA, PA.

TRITON CF-32

less residual odor on fabrics ...

*when the softener has **New ADM***

**easier perfuming...whiter too! non-irritating to skin...
more softener quality at no added cost**

Now, No Musty Softener Smell! Odor is virtually eliminated as a textile-softener problem with the introduction of ADM's new Adogen 442.

This is a new quaternary salt specially developed by ADM research chemists to produce a finer quality softener for commercial and home laundering. It is created through ADM's unique processing from highest purity fatty amines.

As a result, Adogen 442 is exceptionally free from objectionable odors, both in the bottle and on treated fabrics. Blindfold tests show Adogen 442 can help you cut back perfuming costs and lowers residual odor after use dramatically. Panel tests on odor showed Adogen 442 excellent for commercial softeners. Comments like musty, sour and stale were replaced by delighted references to clean and fresh.

Offers Whiter Color—Adogen 442 is an exceptionally white di-hydrogenated-tallow quaternary, sold as a 75% paste in alcohol and water. Its lighter color makes it ideal for even the finest grade softeners. Com-

mercial batches of Adogen 442 run consistently Gardner 1 to 3. This gives fabric softeners a brighter, livelier color in the bottle, whether they are white or tinted.

Non-Irritating To Skin—Dermatological tests on albino rabbits reveal that Adogen 442 is essentially non-irritating to skin. In neither the primary nor the latent skin irritation tests were any significant erythema or edema formation detected. Adogen 442 has no cumulative toxic effects.

Water dispersible Adogen 442 is soluble in polar organic solvents and many of the non-polar type. It is also compatible with non-ionics as well as other cationic surfactants. To further protect its quality, Adogen 442 is delivered in epoxy-phenolic lined drums especially designed for ADM.

For further information on Adogen 442, or other ADM quaternary ammonium compounds, write to Archer-Daniels-Midland Co., 700 Investors Building, Minneapolis 2, Minn. Research samples on request.

Industrial Bacteriostat News!

*Exceptional solubility in saline or hard water available
with NEW FURFURYL ADOGEN 446*

Here are new savings and new performance even in hard water in industrial bacteriostats just developed by ADM research: ADM furfuryl Adogen 446. This low-cost furfuryl quaternary combines exceptional new solubility with germicidal effectiveness.

Striking performance in Chambers tests against *Staphylococcus aureus* in 500 ppm hard water shows Adogen 446's effectiveness against gram positive bacteria. The phenol coefficient of Adogen 446 compares favorably with benzyl quaternaries and cetyl pyridinium chloride. Solubility of up to 40 per cent in tap water and 20 per cent in brine helps preserve its sanitizing efficiency under adverse water conditions. Ask us for more facts about its exceptional performance.

Low cost and germicidal effectiveness combine to make Adogen 446 a promising ingredient for hotel and restaurant sanitizers, bottle washing, floor cleaners, and a variety of industrial germicides. The long fatty chains in the new furfuryl quat gives balanced conditioning properties which may be useful in hair rinses, textile specialties, and a host of other applications. Information and development samples may be had by writing Archer-Daniels-Midland Co., 700 Investors Building, Minneapolis 2, Minnesota.

Adogen 442



The
Research Chemists'
Corner

ADM and Atlas Powder Announce First Gas Chromatography For Primary Amines

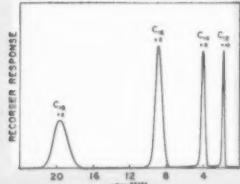
Not so long ago ADM broke the ice and revealed the first use of gas chromatography in routine production line analysis of fatty chemicals. A genuine milestone it represented in over 25 years of searching and researching for better ways of making chemicals.

But one thing had us stumped . . . try as we would, we just couldn't analyze amines because the peaks were asymmetrical. But, today, things are different.

Eager beavers at our own and Atlas Powder Company's labs have jointly developed a method to make a gas chromatographic analysis directly on a primary amine. Unless you have tried and failed in this attempt, you'll probably never really appreciate how proud this moment is, even though we can't yet touch secondaries.

The method utilizes a column containing a non-polar liquid substrate on a Chromosorb W solid support which has been treated to reduce absorptivity. Relative sensitivity factors, determined for pure amines, are used to correct peaks during analysis. It works beautifully for the separation and analysis of primary fatty amines with chain length from 8 through 22.

Matter of fact, the improved color and higher purity of our new Adogens, like 442, is at least



indirectly a proud result of our growing skill in gas chromatography.

Add to this our world-wide ADM operations, which give us control of raw materials, and you see we have quite a favorable atmosphere for production and control of quality Chemifats . . . whatever their type.

**Archer-
Daniels-
Midland**

INDUSTRIAL CHEMICALS DIVISION
734 Investors Building
Minneapolis 2, Minnesota



ATLANTIC ULTRAWETS®: PERFECT FOR ALL HOUSEHOLD DETERGENTS



Ultrawet	Solids	Molecular Weight	Appearance	Active Minimum	Recommended Applications
LIQUIDS					
Clear	30DS	30%	Medium	Clear, pale yellow	27.0%
	60L	60%	High	Clear, pale yellow	60.0%
	35KX	35%	Medium	Clear, pale yellow	31.5%
Slurries	35K	35%	High	Pale yellow	31.5%
FLAKES					
	DS	100%	Medium	Light, cream colored	90%
	K	100%	High	Light, cream colored	90%
	K Dense	100%	High	Light, cream colored	90%
	KX	100%	Medium	Light, cream colored	90%
	KX Dense	100%	Medium	Light, cream colored	90%
BEADS					
	SK Bead	100%	High	White, free flowing	40%
	SK Bead High Density	100%	High	White, free flowing	40%
Penetrant, wetting agent, metal cleaner, emulsion polymerization.					
Liquid detergents, wet textile processing shampoos, car wash, household detergent formulations, janitorial supplies.					
Liquid detergents and household cleaners, wet textile processing, emulsion polymerization, post stabilizer for emulsions.					
Drum-dried and spray-dried cleansing compounds, light and heavy-duty liquid detergents.					
Industrial detergents, emulsifier, dry mixing with alkalies, air entraining agent.					
Industrial detergents, heavy-duty household detergents, emulsifier, dry mixing with alkalies.					
Same as above.					
Same as 35KX in dry form.					
Same as KX—except smaller particle size with increased density, air entraining agent.					
Light-duty household detergents, dry mixing with alkalies.					
Same as above—synthetic wool washes, air entraining agent.					



Whether your customers are gently shampooing a baby's hair or doing heavy household cleaning—there is an Atlantic Ultrawet especially designed to build just the right detergent formulation.

Detergency, wetting ability, sudsing action, lack of odor and long shelf-life stability are of utmost importance and must be consistently and carefully controlled. That's why Atlantic Ultrawets are produced with precision control in every step of the manufacturing process. This stringent control assures you of consistently high-quality alkyl aryl sulfonates for your formulations.

There's an Atlantic Ultrawet for your formulation.

The background and experience of our sales engineers are other Atlantic extras. Each man is a graduate chemist or chemical engineer—the solid background invaluable to you in preparing your finished products and in devising new formulations for new products. Write or call us for the whole story.

THE ATLANTIC REFINING COMPANY

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In Canada: Naugatuck Chemicals
Division of Dominion Rubber
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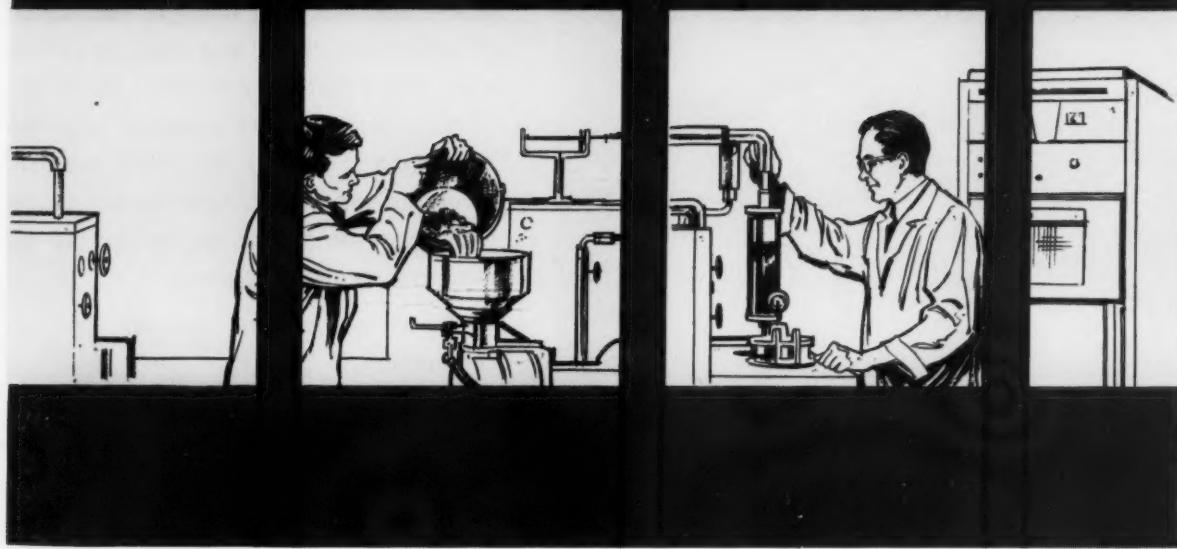
In South America: Atlantic Refining
Company of Brazil, Rio de Janeiro.



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synergized
technical
service

from **fmc**®



The new wing at our Princeton Research Center houses the combined application research staffs of all FMC Inorganic Chemical Divisions.

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CAUSTIC SODA 50% and 73% Liquid, Regular and Rayon Grades; Flake, Solid and Ground

CAUSTIC POTASH 45% and 50% Liquid; Flake **SODA ASH** Light, Intermediate and Dense Grades

This modern, customer-service laboratory is another FMC activity designed to help you use our products more effectively and economically. It supplements the valuable assistance rendered in customers' plants by engineers, technicians and industry specialists working out of our plants, offices and laboratories.

Remember this outstanding service the next time you have a problem involving alkalis. And next time you're in the market for alkalis, remember FMC.



Putting Ideas to Work

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Chlor-Alkali Division

General Sales Offices:

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SOAP and CHEMICAL SPECIALTIES

THE HIDDEN PLUS... BTC-1100

Behind every successful product is a hidden plus... a property which lifts it beyond the usual.

New BTC-1100 is just such a chemical... it goes way beyond the average. Its biological properties included in your powdered or tablet formulation lift your product above expectations. BTC-1100 is in fact the most biologically potent quaternary commercially available. It is a 100% active, non-dusting, free-flowing powder. BTC-1100 has a water tolerance level of 1100 ppm, with a guaranteed minimum phenol coefficient of 1000 vs. *S. Aureus* and 650 vs. *S. Typhosa*. Its use dilutions are very unique as they are virtually tasteless. These properties of BTC-1100 will increase the marketability of your formulation.

Product samples and literature is available for your evaluation.

POTENTIAL APPLICATIONS:

- Hard surface sanitizers and disinfectants
- Swimming pool algaecides
- Aerosol deodorants and disinfectants
- Oral pharmaceutical applications
- Industrial water treatment

New catalog now available.

Onyx Chemical Corporation

100 Warren Street, Jersey City, New Jersey

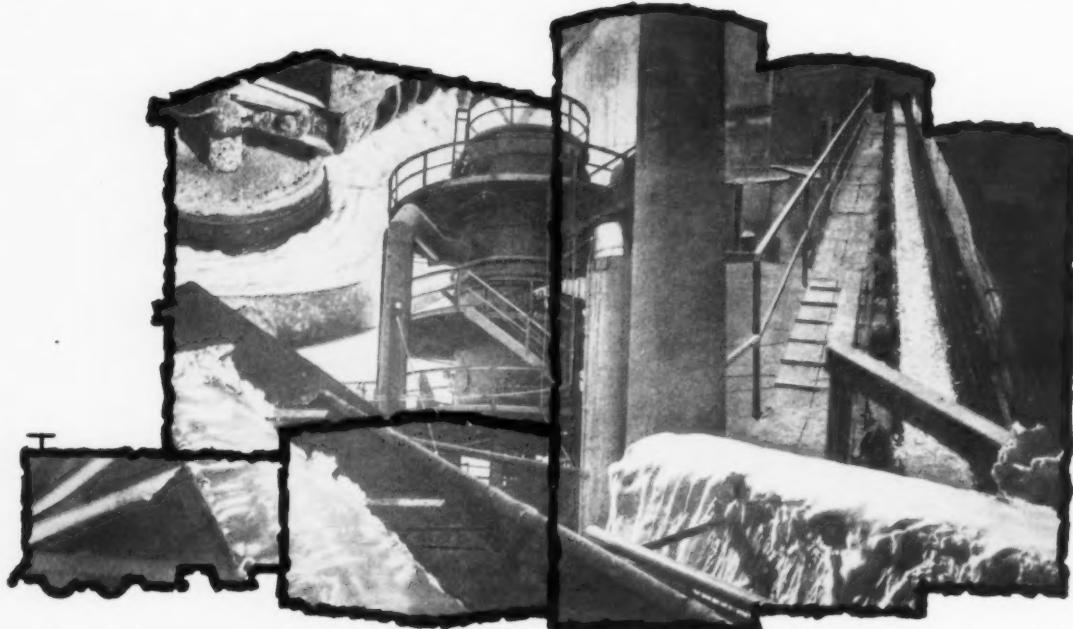


WEST END

*advance
planning*



**OF EXPANDED SODIUM SULFATE
PRODUCTION ANTICIPATES
INDUSTRY'S GROWING NEEDS**

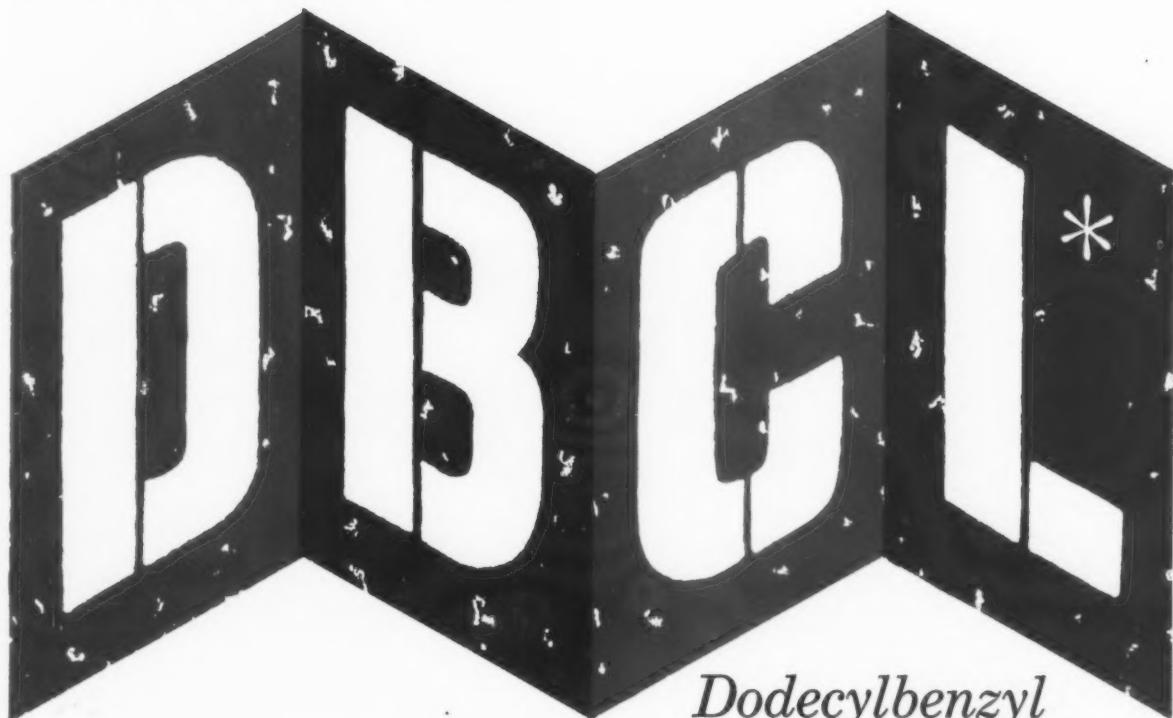


WEST END demonstrates its complete reliability as a major source by the continuing enlargement of its production facilities devoted to the manufacture of highest quality anhydrous sodium sulfate as a prime product. Independent of other product production and located at the site of vast natural raw material supply, West End is solidly qualified to handle the complete requirements of customers dependably, economically and efficiently.



WEST END CHEMICAL COMPANY • DIVISION OF STAUFFER CHEMICAL COMPANY
636 CALIFORNIA STREET, SAN FRANCISCO, CALIFORNIA • PLANT: WESTEND, CALIFORNIA

CONOCO



*Dodecylbenzyl
chloride
technical grade
... the intermediate for
cationic surface active agents*

***TYPICAL PHYSICAL PROPERTIES**

Specific Gravity at 60°F	0.965
Apparent Molecular Weight	292
Activity	Approx. 95%
Minimum Activity	90%
Flash Point (C.O.C.)	355°F.
Viscosity S.U.S. at 100°F	105
Pour Point	Less than -5°C.



For chemicals with a head start
on the future... count on CONOCO!

CONOCO DBCL reacts with tertiary amines to form cationic surface-active agents—known chemically as “quaternary ammonium salts.” Quaternaries are used as the active ingredients in sanitizer preparations, as textile softeners, and as antistatic agents for fibers, plastics, and paper. Nonionic surface-active agents may also be made by reacting CONOCO DBCL with the appropriate polyglycol.

For samples and further information, just send a request on your letterhead.

CONTINENTAL OIL COMPANY, PETROCHEMICAL DEPARTMENT
1270 AVENUE OF THE AMERICAS, NEW YORK 20, NEW YORK



OUR
STRENGTH
IS
HER
WEAKNESS

EWING GALLOWAY PHOTO

Ever notice a woman at a cosmetic counter? No matter what she buys—lipstick, face powder, soap—she does one thing with every product—she smells it. That's right—the fragrance is the final test. That's why, in some cases, she can tell you which product she likes better blindfolded—she buys by the fragrance. We at Perry feel that our imaginative skill in the art of perfumery—and it is an art—may well help lagging sales for your product.

Whether your product comes in a bottle or a barrel, whether it's sold in a drug store or paint shop, an analysis of its fragrance by a Perry expert can mean added sales potential. We welcome the opportunity to submit appropriate samples.



PERRY BROS., INC.

61-14 32nd Ave., WOODSIDE 77, NEW YORK
RAvenswood 1-3636

"Manufacturing Perfume Chemists"

AFTER CLOSING---

First U.S. Text on Aerosols* Just Published

THE spotlight is turned upon all facets of the pressure packaging field by nineteen experts whose contributions make up the latest textbook on aerosols, edited by H. R. Shepherd, president of Aerosol Techniques, Inc., Bridgeport, Conn. Consulting editor is Edward Sagarin, Embassy Laboratories, Inc., Long Island City, N. Y.; advisory editors include: George W. Fiero, Esso Standard Oil Co., New York; William Knapp, Allied Chemical Corporation, New York; Fred T. Reed of E. I. du Pont de Nemours & Co., Wilmington, Del.; and Ray Stetzer of Revlon, Inc., New York.

In 16 separate monographs, each with its list of references, the role, mechanism, components, and applications of aerosols are covered. In an introductory chapter Mr. Shepherd outlines history and growth of aerosols in general and of major product groups in particular. He analyzes the organization of the aerosol industry, fairly weighing the pros and cons of both custom and captive filling.

A chapter by Ralph C. Downing of du Pont is entitled "Theory and Practice of Aerosols." Aerosol operation, various propellants, active ingredients and solvents are covered and the different aerosol systems are explained.

Metal containers are reviewed by Robert A. Foresman, aerosol consultant of Philadelphia. Historical background on steel and tinplate containers as well as available types are covered. Aluminum containers, their domestic and foreign manufacturers, as well as decorative metal containers for refills receive attention. Specifications for aerosol metal containers and ICC

Aerosols: Science and Technology, Edited by H. R. Shepherd, Interscience Publishers, Inc., New York, 548 pages, cloth bound, price \$22.50.



regulations governing them are given and a list of metal container manufacturers is appended.

"Larvex," a mothproofer by Zonite Products Corp. (now Chemway) and "Myna," a window cleaner, probably hold the distinction of being the first modern fluorinated hydrocarbon propelled aerosols marketed in glass containers, according to Ralph H. Thomas, Bristol-Meyers Co., Hillside, N. J., contributor of a chapter on glass and plastic containers. He deals with the history of the uncoated and of the protected bottle and with the scope for glass containers, their design, and handling and shipping. Information is tabulated for both coated and uncoated glass containers. Safety factors pertaining to coated and uncoated containers are dealt with and test methods and ICC requirements given.

Approximately a hundred pages are devoted to contribution on valves by Walter C. Beard, Jr., Risdon Manufacturing Co., Naugatuck, Conn. History and components of valves, materials of construction, spray pattern, particle size, delivery rate, weight loss, are covered. Foam valves, glass bottle

valves, metering and drop dispensing valves are described and illustrated.

The propellant is the most essential component of the entire pressure package, according to Fred T. Reed of E. I. du Pont de Nemours & Co., author of the monograph on propellants. A definition of a propellant and classification by vapor pressure or boiling point are offered. Physical properties of halogenated propellants are tabulated, and a list of foreign trade names and suppliers of fluorinated hydrocarbons is given. Requirements for the properties of propellants, their manufacture, and analytical methods for their evaluation are covered.

Montfort A. Johnsen, Peterson Filling & Packaging Co., Danville, Ill., has a monograph on laboratory techniques for the testing of aerosols for storage stability, flammability, and other properties. Techniques pertaining to the testing of valves and other components and production quality control procedures are discussed.

The first consideration in formulation design is the type of propellant to be used, according to Morris J. Root, G. Barr & Co., Chicago, writing on factors in formulation design.

Edward Sagarin of Embassy Laboratories, Inc., contributed a chapter on odor in aerosol products. Having dealt with proportions and quantities used, he turns to problems encountered by the perfumer. Solubility, corrosion, valve clogging (mainly in metered valves), compatibility with propellants and concentrates, masking of odoriferous ingredients, darkening and staining, effect on spray and foam patterns, stability of fragrance are discussed.

"Cosmetics: Fragrance and Personal Hygiene Products" is the title of Samuel Prussin's (Aerosol Techniques, Inc.) contribution. Hair sprays, perfumes and colognes, and shaving creams have achieved outstanding success in this field, Mr. Prussin states. Whereas the hair spray may be regarded in

a sense as a new cosmetic, fragrance products and shave creams have to compete with the conventional forms by offering convenience and a number of other functional advantages to the consumer.

The author discusses actual and potential markets for shave cream which accounts for about one third of all pressure packaged personal products. Formulas and manufacturing procedures are given for aerosol shaving creams propelled by halogenated hydrocarbons, by saturated hydrocarbon propellants, and by nitrogen.

Aerosol shampoos are discussed and formulations suggested for foam and liquid types. Reasons for early set backs were corrosion problems which have been solved by modified formulations and the advent of the plastic coated glass bottle, according to the author.

A number of formulations are given for aerosol hand and body lotions, which include a mechanics' hand cream loaded with fluorinated hydrocarbon propellants and a waterless hand cleaner with a liquefied petroleum propellant.

Hair dressings (as distinct from hair sprays) are a comparatively recent addition to the aerosol picture, according to Mr. Prussin. Formulas for a number of such products are supplied for filling in either metal or glass containers. Aerosol fragrances and bubble bath preparations as well as a bath oil sprays are covered. Mr. Prussin offers a wealth of formulations for aerosol personal deodorants and antiperspirants in spray and foam forms, as well as for sunscreens.

The author stresses the practical as well as the historical interest of pressurized toothpaste, the first nitrogen propelled non-food aerosol. Requirements for a satisfactory toothpaste are specified and tests given to ensure that they are met by the final product. A formula for pressurized toothpaste is suggested together with a manufacturing procedure. The use of lubricated containers is discussed. The

final section of this chapter on personal products is devoted to aerosol powders and includes formulations for foot powders and dusting powders.

Mr. Prussin gives, in all, 55 basic formulae in his chapter which should be useful to the man in industry contemplating his first or an additional departure into the field of pressure packaging.

A hermetically sealed container, accurate dosage, and convenience are the main advantages offered by the pressure dispensed pharmaceutical, according to Irving Porush of Riker Laboratories, Inc., Los Angeles, author of the chapter on pharmaceutical products. Stability requirements for all components, including container and valve are rigorous in the pharmaceutical field. This obvious fact is illustrated by examples taken from actual production practice. A number of formulations are suggested for both topical and internal sprays. Special quality control procedures peculiar to pharmaceuticals are described in some detail.

Foams have so far been the most successful pressurized food products, although products with little or no aeration such as fruit or chocolate syrups are being marketed, states W. E. Graham of Clayton Corp., St. Louis, in his contribution dealing with food aerosols. Various types of containers, valves, and compressed gas propellants at the disposal of the aerosol

loader of food products are covered.

George W. Fiero of Esso Standard Oil Co., New York, contributor of the chapter on insecticides, outlines the history of pesti- cidal aerosols from their military beginnings through their phenomenal growth in civilian commercial use.

Individual toxicants are described and insecticidal testing of aerosols is covered. High and low pressure insecticide formulations are discussed. Principle and formulation of low propellant formulations are covered. Residual insecticidal aerosols, their composition, effectiveness, and their evaluation are described. Aerosols for aircraft disinfection, greenhouse and garden toxicants, herbicides, pet and livestock sprays, insect repellents, and garbage can sprays are covered in Dr. Fiero's monograph. Government requirements for the ingredient statement on labels are tabulated for individual toxicants and precautionary labeling requirements are explained. Aerosol test methods developed by the Chemical Specialties Manufacturers Association for various insecticides are appended in full.

A chapter on coating compositions, contributed by F. A. Bower and F. S. Palmer of E. I. du Pont de Nemours & Co., covers properties desired in an aerosol paint, selection of components and a number of formulations. Com-

H. R. Shepherd, president of *Aerosol Techniques, Inc.*, Bridgeport, Conn., editor of "Aerosols: Science and Technology" (right) presents first copy of newly issued volume to E. Emerson Lenallen, dean of Columbia University's College of Pharmacy.



mon defects of paint films such as bubbling and cratering are discussed in detail.

The final chapter by N. J. Froot of McLaughlin, Gormley King Co., Minneapolis, deals with household and industrial specialties. Space deodorants are classified

according to their mode of action and test methods and formulations for these products are given.

Artificial snow, clear plastic spray, window cleaners, oven cleaners, spot removers, water proofers, fire extinguishers, shoe and leather care products, and charcoal igniters

are the household products covered. Formulations are suggested for each product group.

The volume is a text book and formulary under one cover, useful to anyone concerned with the theory or practice of pressure packaging.

La Maur Wins Patent Decision

Lan action brought by La Maur, Inc., Minneapolis, against L. S. Donaldson Co., a Minneapolis department store, and G. Barr & Co., aerosol loader, Chicago, the United States District Court, District of Minnesota, has handed down a memorandum decision on Jan. 23, favorable to La Maur on one of two counts.

La Maur claimed infringement of its United States patent No. 2,871,161, and misappropriation of a claimed trade secret. Both the patent and trade secret relate to an aerosol hair spray composed essentially of "Freon," alcohol and polyvinylpyrrolidone (PVP). The patent count was decided in La Maur's favor.

The defendant, G. Barr & Co., loads aerosols for a number of major companies including Max Factor, Toni, Colgate, Hazel Bishop, and others. Barr is a defendant on both counts, Donaldson only on the infringement count. Barr carried the defense for both. M. L. Spiegel, La Maur's president, started experimenting with an alcoholic solution of PVP in 1951 and sent some of this solution to Barr for loading with "Freon," to establish compatibility of the materials. Early in 1952 La Maur made arrangements to have the resulting new hair spray manufactured by G. Barr and supplied to the filler PVP identified by the code name "resin LM". In March 1952 La Maur started to receive shipments of its aerosol PVP hair spray and has been selling it ever since under the trade name "Style".

At about that time, it is claimed by La Maur, Barr made unsuccessful efforts to identify the resin and in June 1952 finally identified it by uncovering a GAF (General Aniline & Film Corp.) label which plaintiff (La Maur) had concealed with dark ink and another label. It is further claimed that Barr immediately began experimenting with PVP hair spray for its own benefit and took some of plaintiff's production stock for that purpose.

On July 31, 1952, Spiegel filed his patent application. In November of 1952 plaintiff shifted his loading business from Barr to another company. La Maur maintains that during all this time it kept the identity of "resin LM" secret and that Barr knew that it was to be secret.

It does not appear from the evidence that Barr at any time disclosed his knowledge as to the real nature of "resin LM", according to Court's opinion. In December 1952 GAF and Barr started the promotion of aerosol PVP hair spray using allegedly Spiegel's formula. Subsequently, most of the major cosmetic companies put out PVP hair spray using, it is claimed, the Spiegel formula.

Between 1953 and 1956 the aerosol hair spray industry expanded tremendously, the majority of the product being of the PVP type, the Court notes.

On March 27, 1953, one Martinelli, a GAF chemist, filed a patent application for PVP hair spray. On Feb. 21, 1957, the Patent Office formally declared an

interference proceeding between the Spiegel application owned by the plaintiff and the Martinelli application owned by GAF. The proceeding was terminated on Jan. 27, 1959, in favor of Spiegel and the patent in suit was issued to the plaintiff.

Subsequently, La Maur sought to issue licenses under the patent in suit to the entire trade. Some companies, e.g. Breck, took licenses, but most of the trade refused. The defendant, Barr, indemnified his customers against liability for infringement of the patent. By this time the aerosol spray business was running at a volume of about a million dollars a year, largely PVP sprays, which, it is claimed, infringe on the plaintiff's patent.

In their answer to the patent infringement cause of motion, the defendants claim principally that the patent is invalid because it lacks novelty and . . . that the claimed invention was one which would have been obvious, at the time the invention was allegedly made, to a person having skill in the art.

The defendants also claimed that, even assuming that the patent is valid, there has been no infringement because the hair spray loaded by Barr does not fall within any of the 9 claims of plaintiff's invention, and that it is a different product from Spiegel's, composed of copolymers of vinylpyrrolidone with vinyl acetate (PVP/VA E-735) rather than of homopolymers of vinylpyrrolidone (PVP NP K-39), as is Spiegel's.

As to the trade secret count, the defendant denies that La Maur had any trade secret. . . . At all events, it claims, that if it did learn a trade secret, it did not violate a confidence, either by using it or telling others about it. Barr claims that the secret, if any there be, was publicized to the trade by GAF and then became public knowledge.

The product with which plaintiff has been making its "Style" hair spray since 1952 is the homopolymer "PVP NP K-30". Barr likewise made aerosol hair spray with PVP NP K-30 for a number of years, the memorandum states. When the patent in suit was issued on Jan. 27, 1959, Barr had on hand some PVP NP K-30, and proceeded (with full knowledge of the patent, and after being advised by its counsel that the patent covered PVP NP K-30) to clean up its inventory and selling about 40,000 to 50,000 cans of infringing hair spray. Barr concedes infringement to this extent, but asserts that the 40,000 to 50,000 cans were negligible in comparison with the approximately 30 million cans of aerosol hair spray manufactured by Barr annually. Barr also asserts that it has stopped using PVP NP K-30 completely since manufacturing these 40,000 to 50,000 cans, the memorandum reports.

Since the issuance of the patent in suit, however, Barr has also manufactured and sold millions of cans of aerosol hair spray containing PVP/VA E-735, and the sole infringement issue in the case, therefore, is whether these hair sprays made with PVP/VA E-735 infringed the patent.

Plaintiff offered evidence, not seriously disputed by the defendants, that PVP/VA E-735 and PVP NP K-30 are equivalent for hair spray purposes. Practical evidence of equivalency was presented which showed that during 1957, GAF's facilities for the production of the vinyl pyrrolidone monomer were unable to keep up with the demand, and it then had available

only limited quantities of PVP NP K-30 and limited quantities of PVP/VA E-735. At least one of the major cosmetic companies used these two products interchangeably from batch to batch, in the same hair spray under the same label, the Court notes.

La Maur urged "that, for aerosol hair spray purposes, PVP/VA E-735 is in effect simply a diluted form of PVP NP K-30, and that even if the semantic question be resolved to adopt the narrower view, there is infringement without resort to the doctrine of equivalents."

In this case, "the vinyl acetate in PVP/VA E-735 is added chemically. Nevertheless, in the light of the principles of polymer chemistry previously described, the addition of 30% vinyl acetate by copolymerization with vinyl pyrrolidone is in practical effect, a dilution with an . . . minor modification. It is my view that the legal principle which covers dilution and minor modification by physical means should be likewise applied in the polymer field where the dilution and minor modification may be accomplished chemically," the judge's decision stated.

"The Court . . . finds on the basis of all the evidence in the case substantial infringement by both defendants of all nine claims of the patent in suit."

The Court's memorandum then turns to the question of the patent's validity: "Spiegel filed his patent application on July 31, 1952. The Patent Office issued him a patent on January 27, 1959, after the application had gone through the usual procedures of investigation and examination in the Patent Office, and the somewhat inordinate procedure of standing up under an interference proceeding.

"The patent is presumed to be valid, and the burden of establishing its invalidity is upon the defendant."

The law requires that the invention may not be patented if the subject matter would have been

obvious at the time of the invention to a person having ordinary skill in the art. The Court's decision has this to say: "In essence, Spiegel's invention was of the compatibility of 'Freon', alcohol and PVP, and of the application of PVP to the hair from a substantially water free alcohol solution. . . .

"The facts here show that Spiegel's composition was not obvious to those skilled in the art. Barr's chemists did extensive research in the field of aerosol hair spray for several years but failed to discover the Spiegel composition. Even after having some of the composition in hand, neither Barr's chemists nor those of the Catalin Corp. of America and the American Cyanamid Co. could discover that 'resin LM' was PVP. Marinelli, a research worker for GAF, did research work for many months and did not come up with Spiegel's solution. It is logical to conclude, therefore, that it was not obvious to those skilled in the art that you could take PVP, always thought of before as exclusively a pharmaceutical chemical, and merge it with alcohol and 'Freon' in an aerosol container and spray it on the hair from a waterfree solution."

Another passage of the memorandum asserts: "There is corroborative evidence of the inventiveness of Spiegel's formula. Aerosol PVP hair sprays have met with marked commercial success. This has long been held to be evidence of invention." . . . "Moreover, Spiegel's invention has been imitated by most of the cosmetic industry, and such imitation is recognized as persuasive corroborative evidence of invention."

Summing up, the Court concludes "that the patent issued is valid; and that the patent has been infringed."

On the other hand, the Court concludes "that the plaintiff (La Maur) has not discharged its burden of proving a cause of action for misappropriation of a trade secret."



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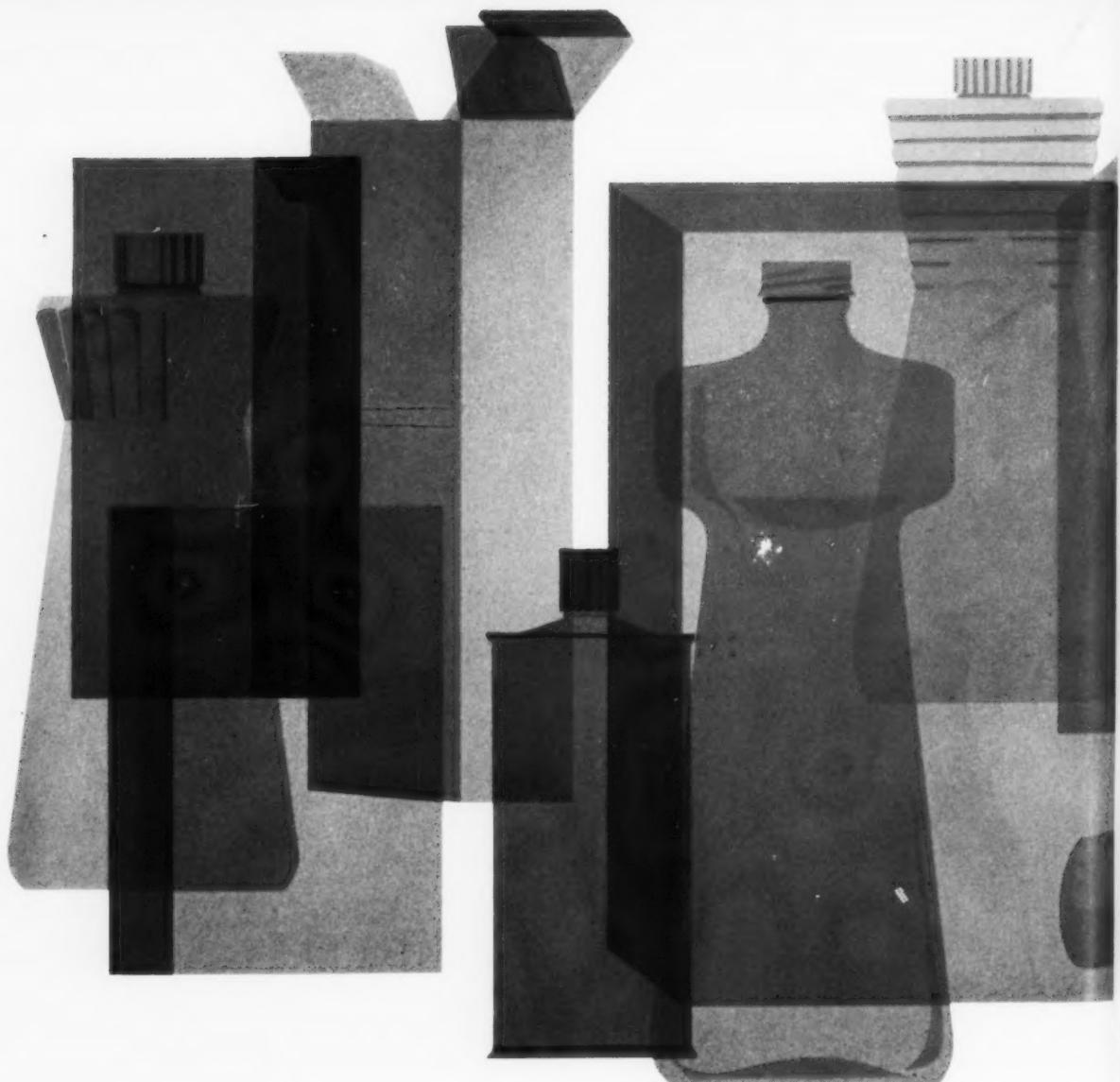
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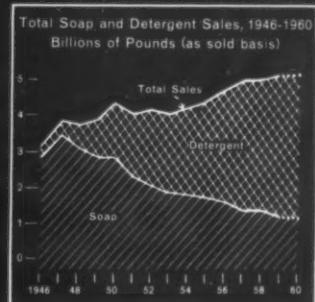
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—	1.0 wt. % max.	1.5 wt. % max.	—	—
—	98.50 wt. % min.	15.0 wt. % max.	—	—
—	1.0 wt. % max.	85.0 wt. % min.	98.0 wt. % min.	0.003 wt. % max.
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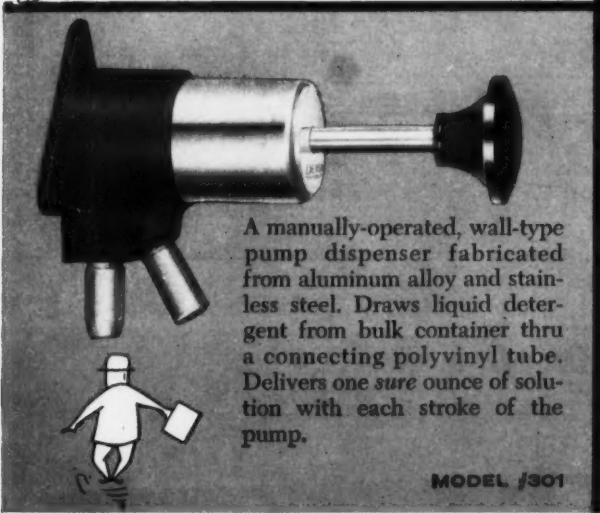


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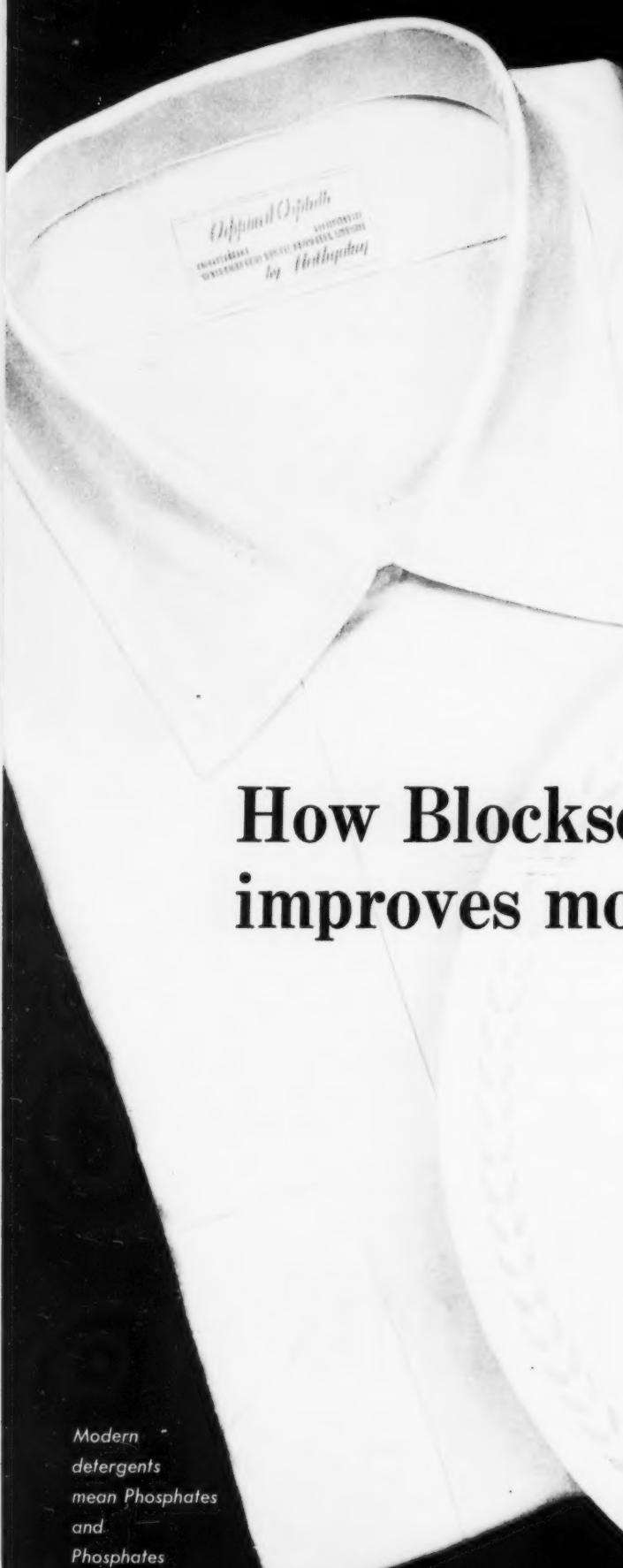
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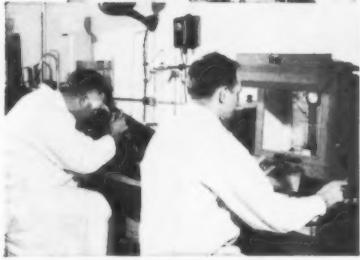
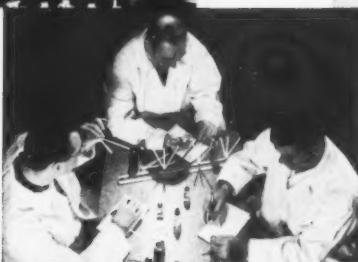
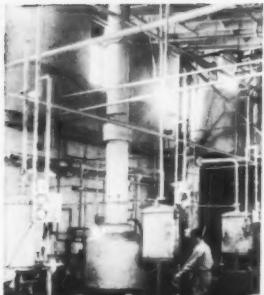
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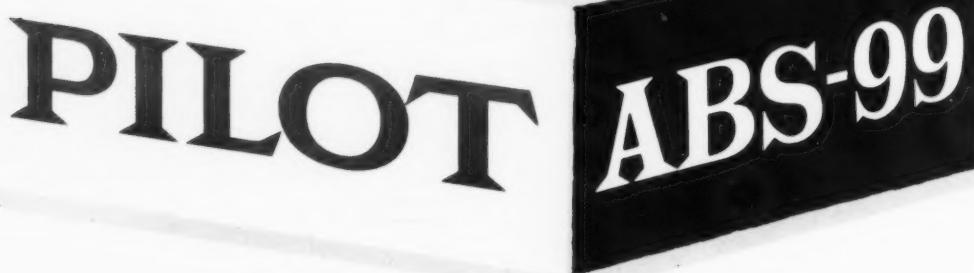
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CYANAMID

A highly soluble, highly acid- and alkali-stable emulsifier with non-rewetting properties, Aerosol 22 makes an excellent additive for many cosmetics and household and industrial cleaners and polishes. Aerosol 22 has good dispersing qualities and ability to produce small particle-size emulsions — features that impart good spreading or covering properties to such diverse products as beauty creams, floor polishes and shoe polishes.

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The diverse properties of Aerosol 22 give it wide use for soaps and detergents.

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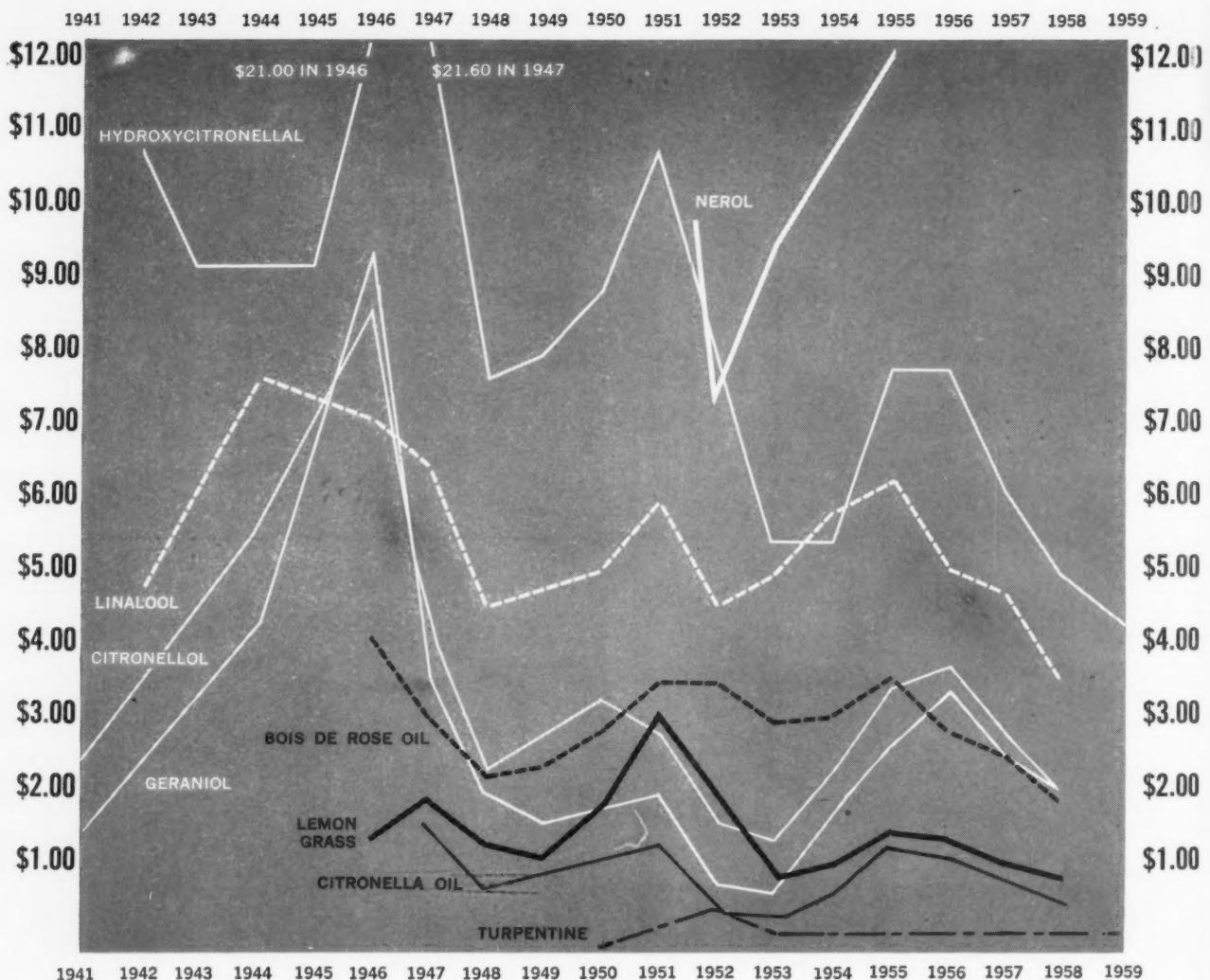
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as the editor sees it...

WORLD SOAP

Production of soaps and detergents in the western world totaled 9.1 million tons in 1958, according to estimates by Dr. W. Grauert of Unilever, Ltd. published a few months ago in *Chemische Industrie-International*. Of this total, 2.8 million tons consisted of synthetic detergents, the balance soap. This gives a figure of 30 per cent for detergents in the over-all western world picture against something over 70 per cent for detergents in the United States.

More recently, Dr. C. Harz in *Seifen-Oele-Fette-Wachse* analyzed 1959 soap-detergent production of Western Europe. He came up with a figure of 3.2 million tons. Of this, 37 per cent was detergents. Add to this a total of 2.4 million tons for the U. S., possibly one million more for other western nations, and we end up with a total for the western world of 6.6 million tons.

Our own figures for 1956 showed 8.5 million tons as the estimated total world production of which about 30 per cent was detergents. But these latter figures included Russia, China, India, and other nations not included in the figures of the eminent authorities above. All of which indicate that there are considerable variations in estimates of the world's soap-detergent output. All we know for sure is that it is growing, — and that soap still supplies two-thirds of the world's cleaning needs. Beyond that we feel that considerable study is yet in order.

* * * * *

POISON DATA

A 40-page section on poisons and antidotes is included in the 1961 edition of the Physicians' Desk Reference to Pharmaceutical Specialties and Biologicals, an annual published by *Medical Economics*. The publishers state that the poison section was compiled in cooperation with 213 manufacturers whose products are described and that every physician in private practice plus 7,000 hospitals has received a copy of the book. The poison and antidotes section

includes brief monographs on 50 common chemicals with suggestions for emergency treatment of poisoning by them. These are followed by a list of representative household products with chemical constituents appearing after the trade names. If a product is not included in the list, the physician is advised to contact the nearest Poison Control Center.

Off hand, this information could be vitally useful to every physician in emergency treatment of accidental poisoning. However, of necessity it must be incomplete in view of the thousands of household chemical products on the market with new ones coming out almost daily. Where the chemical is ingested from the original container and can be recognized by the doctor, it might be relatively simple. But if the contents have been transferred to an unmarked container, a common happening, what is the doctor to do except guess and hope? Nevertheless, we feel this publication must be applauded. It is a long step in the right direction. To hope ever for complete protection against accidental poisoning is obviously wishful thinking.

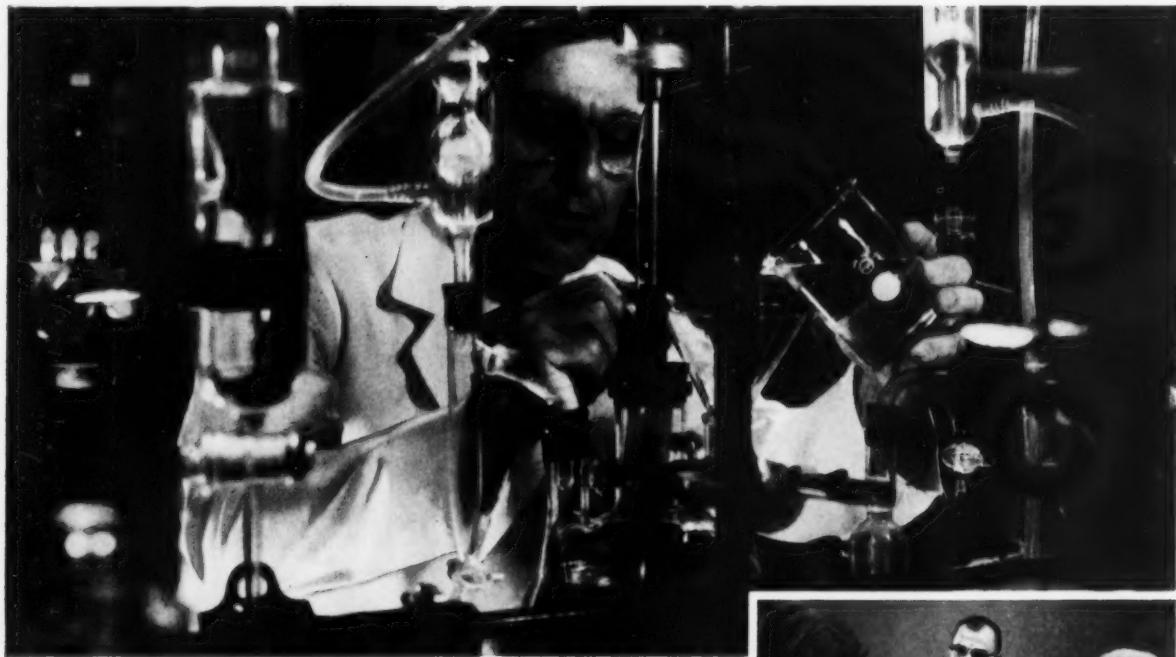
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FULLER BOOK

A new book has just been written about Alfred C. Fuller, 75 year-old chairman and founder of the Fuller Brush Company. It is a deeply interesting work written by Hartzell Spence or as they say in these ghosted autobiographies, "as told to Hartzell Spence." It is a truly rags-to-riches story covering the life span of a remarkable man, a man who did much to take door-to-door selling out of the peddler class and place it on a much higher plane. Today his company stands as one of the world's leading manufacturers and marketers of chemical specialties and cosmetics, a multimillion dollar monument to its founder.

Alfred Fuller gave short shrift to aptitude and intelligence tests, to psychological screening and "personality inventories." In his views on this overdone area of modern employment prac-

To Make Good Polishes Better



For Lasting Luster and Sales ... Formulate With Silicones

Everything consumers want. Polishes formulated with Dow Corning Silicones perform in ways that please consumers, satisfy jobbers, build repeat sales. Silicones make polishes easier to use — faster to apply . . . quicker to shine up . . . give a richer, deeper gloss. And because silicones resist weathering and oxidation, silicone polishes just naturally last longer, provide greater protection.

Formulate these silicone benefits into your polishes — and you build a product image of satisfaction . . . one that means repeat sales.

Everything manufacturers need. Your best source for silicones, and for information about them, is Dow Corning. Here's why.

A most important activity at Dow Corning is research and development in silicone chemistry. As a result, Dow Corning continues to be the leading supplier of technical information about silicones in polishes . . . the leading supplier of new and improved silicone ingredients. Important, too, is the fact that every Dow Corning office is staffed with technical representatives who have extensive background experience in silicones and their many applications.

What about delivery . . . warehousing? With several well-stocked warehouses conveniently located across the country, Dow Corning is in an ideal position to meet your silicone needs promptly . . . to help you maintain efficient inventory control.

For more detailed information about the use of silicones in polishes, contact our office nearest you or write Dept. 8414.



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SOAP and CHEMICAL SPECIALTIES

tice, he finds in us a kindred spirit. He does not believe that a college education is necessary for success in business. We can cite a hundred living examples to prove that he is right.

All told, it's a book which we feel should be required reading for every young salesman. It has a real message. And it makes Horatio Alger look like a piker. It's cleverly titled "A Foot in the Door." It has been reviewed elsewhere in this issue.

* * * * *

CONFUSION

Confusion exists in the minds of a good many manufacturers of chemical specialties as to whether or not their products come under the newly enacted Federal Hazardous Substances Labeling Law. This is only natural, we suppose, since many of them, judging by inquiries we are receiving, never have even taken the trouble to read the law. And this in spite of the fact that it is one of the most important pieces of legislation ever passed dealing with chemical specialties.

Although the date of enforcement of the law has been postponed for six months, "except for highly toxic, extremely flammable and flammable products," it behooves all manufacturers affected by the law to see that their products are properly labeled *now*. In order to do this, however, the first step should be to study the law carefully to see if it applies to the products they make. If the manufacturer then has a question, he should consult his trade association or the Food and Drug Administration.

For some manufacturers, particularly those of industrial type chemical specialties sold through sanitary supply distributors or directly to industrial consumers, the question arises as to whether these are "household products." This question may need interpretation. The law covers "interstate sale and distribution of packages of hazardous substances intended or suitable for household use." Obviously, 55 gallon drums are outside the law. But, if a jobber buys a 55 gallon drum and repacks it in gallon size containers, it looks to us as though such packages would have to be labeled according to the requirements of the law. In general, it is better to interpret the law in its broadest sense and label accordingly. To do otherwise would be to court trouble.

MORE SUPPORT

The Soap Association, at its annual meeting in New York, last month, went on record as opposing certified products lists. Following the lead taken by the Chemical Specialties Manufacturers Assn. and National Sanitary Supply Assn. in fighting these vicious rackets, the Soap Assn. has added its powerful voice to the chorus crying out against such product listings. It will probably take a joint effort of every major industry trade association involved to get the greedy fingers of the sponsors of such lists off the necks of manufacturers of soaps, detergents and chemical specialties. The goal is well worth the effort.

* * * * *

SMALL SHIPMENTS

Costs for handling small shipments of just about every type of merchandise continue to mount. As railroads and truckers jack their rates for small shipments, manufacturers all over, and especially smaller manufacturers, find themselves caught in the squeeze. In addition, the carriers find that their costs are rising and they are ducking small shipment business where possible with a consequent deterioration in the service. The fellow whose business requires shipments of a few hundred pounds as opposed to the carload and truckload shipper finds himself at a marked disadvantage.

Where a firm's business is sufficiently large, the establishment of added warehouses is one solution of the problem. But what of a chemical specialties manufacturer with one plant and insufficient volume to maintain extra warehouses? What of products which by their very nature make carload shipments a rarity? And there are many such. Pooled shipments are fine where the service is available.

In the chemical specialties field, rising shipping and delivery costs have been narrowing territories constantly since World War II. The distance which a manufacturer can ship his goods and absorb delivery charges becomes less and less. In our opinion, the problem is a serious one which becomes more serious as time goes on. Rising plant costs present a tough row to hoe, but we feel that rising shipping costs and deteriorating service are a tougher problem.

SANDELA

An Important Breakthrough in Perfume Chemistry

The tenacious woody notes of Sandalwood... subtle fragrance of the mysterious East... are now completely captured by Sandela.

For years perfumers have sought to find a truly functional chemical body to replace the rare and costly natural oil... until today... until Sandela by Givaudan. For here at last is a completely successful, fully tested alternate for the natural Sandalwood oil in just about every application... soaps, perfumes, powders, creams, detergents, aerosols. The availability and economy of Sandela place the admired Sandalwood note at the perfumer's unrestricted disposal. It is destined to become one of your most valued aromatics.

GIVAUDAN-DELAWANNA, INC.

321 West 44th Street, New York 36, N. Y.

SANDELA—REG. U. S. PAT. OFF.

as the reader sees it...

Surfactants Listed

Editor:

It has come to our attention that a very complete list of commercially available surfactants authored by John W. McCutcheon was published in the December, 1957 issue of *Soap and Chemical Specialties*. Further, that this list entitled, "Surfactants Listed," dated in 1958, is available in book form for \$1.00.

We would appreciate receiving a copy (for which is enclosed \$1.00).

Horton E. Swisher,
In charge, Ontario
R&D Laboratory
Sunkist Growers,
Ontario, Calif.

While it is true such a list was published in 1957-58 in SOAP AND CHEMICAL SPECIALTIES, and reprinted, there is a new listing, the fifth and concluding part of which appears in this issue. Because of the number of products listed in the 1960-61 compilation, only new products, introduced since the publication of the list in 1957-58, appear in the five issues of SOAP AND CHEMICAL SPECIALTIES, beginning with the October, 1960 issue. The complete list of all surfactants is available from Mr. McCutcheon in the form of a 127-page booklet for \$3.50 per copy. These may be obtained directly from John W. McCutcheon, Inc., 236 Mount Kemble Ave., Morristown, N. J. —Ed.

ASTM: Thank You

Editor:

Just a brief note to thank you for the very nice editorial comment in the April, 1960 issue of *Soap and Chemical Specialties*, giving ASTM Committee D-12 a pat on the back.

You must forgive us for being so tardy in writing you, but our technical staff is so very busy sometimes we don't get around to

looking at magazines until they are many months old.

Over the years, we have appreciated the interest you and your editors have taken in ASTM committee work and the results thereto.

Fred F. Van Atta,
Treasurer,
American Society for
Testing Materials
1916 Race St.
Philadelphia 3, Pa.

At the time we "tossed Committee D-12 on Soaps and Other Detergents an editorial bouquet" for the work it has done over the years in evolving standards and specifications for soaps, detergents and cleaners, we were sincere in our compliments. Keep up the good work. —Ed.

Syndets Tax Rise Proposed

In the State of Connecticut, a bill has been introduced in January proposing an increase in the sales tax levied on synthetic detergents. If passed, the proposed

amendment to an existing law would raise the tax on detergents from the currently enforced three per cent to four per cent of the gross receipts.

Stated purpose of the would-be law (Bill 2743): to discourage use of detergents in Connecticut. Alleged difficulties in sewage treatment are cited as the reason for this proposal. Any increase in tax receipts on detergent sales would be used toward defraying costs of modifying sewage treatment plants.

Rapp Named to Board

J. Cy Rapp, vice-president and general manager of the Tidy House Division, Pillsbury Co., Minneapolis, Minn., has been elected to the board of directors, it was announced recently.

Mr. Rapp, former president of the Tidy House Products Co., Shenandoah, Ia., which markets a line of household soaps and cleaning agents, was elected a vice-president of the company in September.

Eric Hchenberg (center), managing director of La Johnson Francaise, St. Denis, holds the "Carnauba Palm Award" presented to him by S. C. Johnson & Son, Inc., Racine, Wis., for "an exceptionally meritorious contribution to the success of the company." Looking on are Howard M. Packard (left), president of the U. S. firm and H. F. Johnson, chairman of S. C. Johnson.



How to make sure of Successful Formulation

1. Use Procter & Gamble products
2. Use Procter & Gamble formulation assistance



KYRO EO. A neutral nonionic synthetic detergent of the 100% alkylphenol ethylene oxide condensate type. A clear light-colored liquid with a clean, pleasant odor. Its superior detergent, wetting and emulsifying properties offer excellent performance in liquid detergents, sanitizer-detergents, self-emulsifying solvents, laundry detergents, glass, textile, and dairy cleaners, insecticides, and bottle washing compounds.



AB GRANULES. A neutral synthetic detergent, wetting and emulsifying agent of the 40% active sodium alkyl aryl sulfonate type. A white spray-dried product that can be used effectively in the blending of bubble baths, car body shampoo, dishwashing compounds, dairy cleaners, insecticides, laundry detergents, rug and upholstery cleaners.



WA PASTE. A neutral synthetic detergent and wetting agent whose active ingredient is mainly sodium lauryl sulfate. Excellent sudsing, wetting, dispersing and penetrating properties. Ideal for paste cream and liquid cream shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, glass cleaners, and especially effective for rug and upholstery cleaners.



AMBER GRANULES. A neutral 88%, 42° titer type soap of outstanding purity and uniformity. Well suited for the preparation of paste or gel products because of its high titer. Its granular form makes it ideal for blending powdered products. Excellent for the compounding of hand cleaners, paste cleaners, polishes, and lubricants.



ES PASTE. A specially developed synthetic detergent whose active ingredient is mainly modified sodium lauryl sulfate. Offers exceptional efficiency and stability over a wide range of operating conditions. Its excellent wetting, penetrating, sudsing, dispersing and emulsifying properties make it well suited for the preparation of liquid shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, car washes, emulsion cleaners.

Procter & Gamble products offer you a proven way to simplify your formulation problems and be confident of successful results. We invite your inquiry for further information and the opportunity to forward an Industrial Catalogue. Write to:



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Manager, Bulk Soap Sales Department
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IVORY BEADS. A medium titer, neutral spray-dried white soap of exceptional purity and quality. Well suited for compounding products where a mild but effective soap is required—hand soaps, polishes, protective creams, and dishwashing compounds.



K LIQUID. A highly concentrated modified ammonium lauryl sulfate—formulated for increased sudsing and mildness. Exceptionally low cloud and pour points—highly fluid and easy to handle. Ideal for clear liquid shampoos, liquid bubble bath preparations, and liquid detergents when high foaming is required.

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Detergents
Dishwashing compounds
Floor scrubs
Glycerine
Hand cleaners
Laundry soaps
Liquid soaps
Medicinal soaps
Metal cleaners
Potash soaps
Scouring cleansers
Shampoos
Shave products
Soap powders
Starch
Steam cleaners
Textile detergents
Toiletries
Toilet soaps
and other detergent
and soap products

Dr. Samuel Green, right, chief of microbiological research, Wallerstein Co., Staten Island, N. Y., is presented with the top 1960 Glycerine Research Award, in the product applications category. Presentation was made by C. C. Tillotson, Procter & Gamble Co., Cincinnati, chairman of the Glycerine Research Committee, during 34th annual meeting of Association of American Soap & Glycerine Producers, Inc., Jan. 26, at the Waldorf-Astoria Hotel, New York.



The Long and Short of it:

The shorter film was cast from Airco's VINOL 125 polyvinyl alcohol; the longer, from a comparable grade of a competitive PVA resin. Both films were entirely immersed in 25°C water. Originally both samples were 10 cm long, 2 cm wide and 2.5 mils thick. Two hours later, the VINOL PVA film is 13.0 cm long; the other, 16.5 cm. In addition there is less swelling in the VINOL film.



VINOL POLYVINYL ALCOHOL RESISTS WATER BETTER

Because VINOL 125 resin is super hydrolyzed, films resist water better and retain more of their original strength and abrasion resistance. These properties are characteristic only of PVA produced by Airco's exclusive continuous manufacturing process.

If water resistance is important to your product — in

textile finishing; paper sizing and coating; packaging films; protective coatings; binders; adhesives — you should consider VINOL 125.

For technical advice and samples of VINOL 125 call the Airco sales office nearest you.

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Vinyl Resins
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Newly elected steering committee of the Industrial division of the Soap Assn., seated, l. to r.: Leonard J. Oppenheimer, West Chemical Products, Inc.; Ballour Augst, Armour & Co., chairman; George H. Packwood, G. H. Packwood Co., vice-chairman. Standing, l. to r.: Melvin Kamen, Kamen Soap Prod-

ucts Co., T. J. Wrocklage, Procter & Gamble Co.; C. L. Weirich, C. B. Dolge Co.; Jack Jones, Sugar Beet Products Co.; Howard Young, Davies-Young Soap Co., and Earl Brenn, Huntington Laboratories, Inc.

Soap Assn. Elects Hoerner

THREE noteworthy actions were taken by the Association of American Soap & Glycerine Producers at its 34th annual meeting in New York last month. The Soap Assn. went on record as opposing certified products lists such as those maintained by the American Hotel Assn., the Rubber Manufacturers Assn. and various other groups. The action of the board of directors of AASGP took the form of approving a resolution of the Soap Association's Industrial Division to the effect that product certification lists serve "no useful purpose," and may "act to the detriment of the consumer of standard goods."

Also announced during the meeting was the discontinuation

by the Glycerine Producers' Association of its promotion activities on behalf of glycerine. Reflecting the shift in glycerine production from the soap industry to the chemical industry, which now turns out most of glycerine in the U. S., the action terminates advertising and publicity on behalf of this polyol.

News was also made at the meeting of the soap industry with the election of John M. Hoerner, of Armour and Co., Chicago, as president of the Soap Association. Mr. Hoerner is vice-president of Armour and general manager of the firm's grocery products division. He succeeds Andrew K. Forthmann, president of Los Angeles Soap Co., who has been president of AASGP for three terms. Mr.

Forthmann becomes vice-president for the west. Another new vice-president is Milton C. Mumford of Lever Brothers Co., New York, who will represent the east. He succeeds Ralph A. Hart of Colgate-Palmolive Co., New York. Arthur K. Schubert, president of Emery Industries, Inc., Cincinnati, continues as vice-president for the mid-west. Other officers reelected were Nils S. Dahl, general manager of John T. Stanley Co., New York, treasurer; M. A. McManus, Lever Brothers Co., assistant treasurer, and Roy W. Peet, association manager, secretary.

Directors elected at the meeting, include, in addition to the officers mentioned above:



Participants in panel discussion of "New Trends in Detergent Technology." Seated, l. to r.: Dr. John R. Van Wazer, Monsanto Chemical Co.; Dr. Sol D. Gershon, Lever Brothers Co., moderator; Dr. R. L. Mayhew, Antara Chemicals Division, General Aniline & Film Corp. Standing, l. to r.: Lester D. Berger, Jr., Union Carbide Chemicals Co., Division of Union Carbide Corp.; Dr. R. Dale Stavner, Oronite Division, California Chemical Co.; D. L. Andersen, General Mills, Inc., and Dr. Leo McKenney of Lever Brothers Co.

Kenneth E. Fulton, Beach Soap Co., Lawrence, Mass.; Howard Young, Davies-Young Soap Co., Dayton, O.; E. H. Farnham, Dow Chemical Co., Midland, Mich.; F. G. Meeker, Andrew Jergens Co., Cincinnati; J. L. Christian, Monsanto Chemical Co., St. Louis; A. C. Stoneman, Purex Corp., South Gate, Calif.; George H. Lesch, Colgate-Palmolive Co., New York, E. R. Baker, Continental Oil Co., Houston, Tex., W. J. O'Connell, Hunko Division, National Dairy Products Co., Memphis, Tenn., and Howard J. Morgens, Procter & Gamble Co., Cincinnati.

Fatty Acids in Industry

"Industrial Fatty Acids and Applications" was the theme of a panel session sponsored by the Fatty Acid Producers' Council on the afternoon of Jan. 25. First panelist was C. H. Lighthipe, of Nopco Chemical Co., his subject, "Fatty Acids as Chemical Building Blocks." Limiting the scope of his paper to even numbered, straight chain carboxylic acids derived from natural fats and oils, he singled out the 805 million pound soap market, plus the 558 million pound acyclic surfactants market, as the major industrial consumers.

Mr. Lighthipe mentioned some of the applications of fatty acid derived surface active agents and other compounds in such industrial specialties as textile auxiliaries, metal processing aids, etc. He

touched also upon the role of fatty acid derived chemicals in cosmetics and insecticides.

The speaker called upon the fatty acids industry to develop a more accurate system of specifications to ensure uniformity of their products and enhance their status as chemical building blocks. Better analytical methods are required to cut the need for evaluation of the raw material in finished products.

"As far as possible before the shipment of any product begins, consideration should be given to packaging," according to Thomas E. Dowling, packaging engineer,

packaging and labeling section, American Cyanamid Co., New York. Mr. Dowling spoke on "Containers for Fatty Acid Products." A test program may be required that involves drum lining tests for liquids, moisture absorption tests for solids, bag filling tests, etc. Many organizations aim at providing six months for such test work prior to commercial product packaging, Mr. Dowling reported.

"Unitized shipments of practically all types of containers are possible with available lift equipment, pallets, etc., and may save labor and containers," Mr. Dowling pointed out.

"Research on Fatty Organometallics" was reported on by Henry Gilman, professor of organic chemistry at Iowa State University. Dr. Gilman directs work sponsored by the Fatty Acid Producers Council on long chain fatty acid derivatives in the area of organometallic chemistry. Organic compounds containing tin should have interesting properties as fungicides, wood preservatives and related products, Dr. Gilman said.

Kenneth A. Earhart, coating resins consultant of Louisville, Ky., compared "Fatty Acids Vs. Whole Oils in Alkyl Resins." The panel session concluded with a motion picture entitled "How Renderers Are Encouraging Tallow Utilization." John J. Hamel, Jr., executive director, National Renderers Assn. introduced the film.

Panelists who discussed: "Building Good Will for Your Company," left to right: Edgar S. Nelson, General Foods Corp.; James L. McWithey, Bristol Myers Co.; John H. O'Connell, Hill & Knowlton, Inc.; Clarence J. Dover, General Electric Co., and George H. Baker, Wyandotte Chemicals Corp.



Syndet Technology Trends

"New Trends in Detergent Technology" was the title of one of the three panels constituting Thursday (Jan. 26) morning's general session. Sol D. Gershon, development manager of household products for Lever Brothers Co. was moderator. Trends in the field of anionics tend toward improvement of existing products and broadening of their range of applications rather than toward development of new materials, according to R. D. Stayner of Oronite Division, California Chemical Co. Dr. Stayner is eastern sales manager of Oronite's industrial chemicals department with headquarters in New York.

Anionics represent about three quarters of all surfactants produced in the United States, Dr. Stayner said. Good performance combined with low price probably account for this predominance. Alkyl benzene sulfonates dominate the field, amounting to nearly half of the entire surfactants market. A trend toward lengthening the alkyl chain of ABS was noted by Dr. Stayner. Until 1958 dodecyl benzene sulfonate based on polypropylene held a most prominent position. However, certain deficiencies exist in heavy duty detergents based of DDBS, which can be partly overcome by use of the longer chain tridecyl benzenes. These exhibit better sudsing properties and reduce by about 50 per cent the need for foam boosters in dishwashing and heavy duty laundry compounds. However, use of tridecyl benzene sulfonate constitutes an improvement over the dodecyl derivative only when applied in warm soft water. In hard water, performance of the two surfactants is substantially equal, Dr. Stayner reported. In certain light duty liquids it has been found advantageous to mix dodecyl and tridecyl benzene sulfonates.

The versatility of lauryl sulfate continues to express itself in a still growing market. However, in shampoos, dentifrices and com-

bo bars there is also a trend to longer alkyl chains such as occur in the tallow fatty alcohols. Ethoxylation prior to sulfonation has been widely adopted to improve dermal properties of detergent formulations.

A trend toward petroleum derivatives as a raw material source for surface active agents is gaining momentum according to Dr. Stayner. Saturated fatty alcohols from such a source will be available in commercial quantities by June 1961 from at least one petroleum company. Petroleum derived straight chain C_8 – C_{18} alpha olefins are being made in experimental quantities and will probably become available for the manufacture of various detergent raw materials, Dr. Stayner believes.

Nonionics will experience product diversification and new raw materials will emerge in this field according to L. D. Berger, Jr., Union Carbide Chemical Co.'s manager of market development. Production of nonionics has increased fivefold in the past ten years. Ethylene oxide will remain the leading hydrophilic component in Mr. Berger's opinion. Major changes will occur in the hydrophobe area, he said and cited the growing interest in synthetic alcohols from oxo and polyolefin sources as an example of this trend. Polymeric hydrophobe structures based on polypropylene oxide are the basis of nonionics marketed by two major suppliers and will grow in importance, Mr. Berger believes.

A trend toward improved measuring and evaluation techniques for detergents and detergent materials and an accelerated research effort are seen by Mr. Berger as a consequence of the highly competitive situation, prevailing especially in the nonionic surfactants field. A better understanding of the relationships of chemical structure to performance will lead to increasing numbers of anionics designed for specialized uses. The displacement of some nonyl phenol based nonionics by

dodecyl phenol products is an example of this trend, Mr. Berger indicated. In addition, chemicals not now thought of as detergent raw materials will find use in this field. A current trend for nonionic organic chemicals, not basically surfactants, to find their way into detergents was noted by Mr. Berger. Better methods for screening such materials and original thinking by the formulator will accelerate this process.

Detergent Trends

Present trends in phosphate builders were reviewed by John R. Van Wazer, Monsanto Chemical Co. Tendencies in the phosphate builders market are toward more varieties and larger volume of granular trisodium phosphate, possible commercialization of the nearly pure high temperature form of sodium tripolyphosphate, and the use of more builders in general purpose liquid and tableted detergents, Dr. Van Wazer indicated. No large volume new builders are on the immediate horizon.

Growth of granular sodium tripolyphosphate in the detergent field will be mainly in admixed solid formulations; tableted and film coated detergents; in small sized crutting operations; and in packaged water softeners. In large volume production the powdered form is better than the granular STPP, according to Dr. Van Wazer.

Among desirable properties of the granular STPP the speaker mentioned the wide range of bulk densities ($\frac{1}{2}$, $\frac{3}{4}$, and $1\frac{1}{2}$ g/cc); low frangibility; high rate of dissolution; and good adsorption of active. He showed data comparing performance characteristics of two types of sprayed and one agglomerated type of granular STPP, indicating superiority of the latter.

The nearly pure, high temperature form of sodium tripolyphosphate gives complete hydration resulting in more water in the product and shorter crutting time. This form is not yet a commercial reality but has been patented by Procter & Gamble Co.

He touched upon the trend toward increasing use of tetrapotassium pyrophosphate in general purpose liquids and gave some data on their performance in such products. Sodium-potassium pyrophosphate is widely used in heavy duty liquids. Dr. Van Wazer reported that work is in progress on a new phosphate builder and discussed the possibilities of methylene phosphonate in detergent applications. The cost factor and a number of technical difficulties make the emergence of a new builder doubtful for some time.

Trends prevailing in detergent uses of quaternaries and amphoteric were summarized by D. L. Andersen, General Mills, Inc. Outlining the differences and similarities between the two types Mr. Andersen pointed out that quaternaries are ammonium based as are most amphoteric; both are highly surface active; both are salts; both form monomolecular films; both are relatively non-irritating. However, while quaternaries are only moderate foamers, amphoteric are high foaming; quaternaries have limited, amphoteric broad compatibility; detergency of quaternaries is specialized, that of amphoteric general.

Mr. Andersen stressed the importance of pH dependence as a factor in understanding perform-



Participating in the panel discussion of "Marketing Industrial Products" were, l. to r.: James E. Crawford, Monsanto Chemical Co.; Henry C. Silldorff, G. M. Basford Co.; John D. Moore, U. S. Borax & Chemical Corp., moderator; Carl T. Hoffman, McKinsey & Co.; Dr. Eugene J. Kelley, New York University, and Henry C. Speel, Universal Oil Products Co.

ance and application of amphoteric molecules. Conventional surfactants are affected by pH usually only as their solubility is changed. An anionic might precipitate in its acid form, a nonionic might be salted out by a high concentration of alkali. A typical broad spectrum amphoteric performs in both acid and alkali. In alkaline solutions it is present as an anionic carboxylic derivative; in acidic solutions as a cationic amino compound; in the neutral range it is neither anionic nor cationic but amphoteric.

Substantivity, one of the quaternaries' fundamental properties, is utilized in applications for textile softening, prevention of static build up; to increase mildew and bacterial resistance of textiles and other substrates; in glass fiber lubricants and other specialties. Detergent sanitizers, pharmaceuticals and cosmetics are among the

major outlets for quaternaries.

Established markets for amphoteric include shampoos, steam cleaning compounds, floor cleaners, freeze thaw stabilizers for latex paints. Newer applications are in acid cleaning, as highly specialized surface active agents, and as corrosion inhibitors.

About 20 per cent of all bar products are soap/syndet combination bars, according to R. L. Mayhew, Antara Chemicals Division of General Aniline & Film Corp. Dr. Mayhew outlined trends in the use of lime soap dispersants. Incorporation of surface active agents in soap products prevents formation of large agglomerates of calcium and magnesium soap and minimizes redeposition and rinsability problems.

Dr. Mayhew showed a lime soap dispersing index list for a

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U. S. Census of Specialties Sales

THE statistics on pages 51-54 are part of the 1958 Census of Manufactures, published by the U. S. Department of Commerce, Bureau of the Census at four year intervals. This table is taken from the census section entitled: Soap, Detergents and Cleaning Preparations, Perfumes, Cosmetics, and Other Toilet Preparations, coded MC58(2)-28D. In addition to the table shown, the publication carries information on regional distribution of manufacturing establishments, on number

of factories, employees, inventories, and other important data on the industries under review.

Figures shown in the first column refer to the product classification under the new Standard Industrial Classification published by the Department of Commerce in 1957.

Any discrepancies between the Census figures and production figures reported by the U. S. Tariff Commission are attributable to differences in reporting. The Census system distinguishes between the

chemical shipped as such, and packaged and formulated products, whereas all surface active agents are reported to the Tariff Commission as bulk products. The Census distinguishes between surface active agents by end uses, whereas the Tariff Commission reports by chemical composition.

Industry report MC58(2)-28D of which the present table is part, may be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., price 25 cents.

Table 6A.—Quantity and Value of Products Shipped by All Manufacturing Establishments, for the United States: 1958 and 1954

Product code	Product	Unit of measure	Production for all purposes (quantity)	1958		1954	
				Total shipments including interplant transfers		Production for all purposes (quantity)	Total shipments including interplant transfers
				Quantity	Value (\$1,000)		
2841	Soap and other detergents, except specialty cleaners		xxx	xxx	1,463,841	xxx	xxx 1,079,860
28411	Alkaline detergents and acid-type cleaners		xxx	xxx	161,080	xxx	xxx (NA)
	Alkaline detergents:						
2841112	Liquid preparations (detergents)	1,000 gals.	16,802	15,929	17,476	9,979	9,414 5,997
	Solid detergents (including bars, flake, or powder):						
2841151	Packaged (in individual containers of 25 lbs. or less)	1,000 lbs.	139,383	139,177	26,225	142,867	143,332 21,874
2841155	Bulk (in individual containers of more than 25 lbs.)	do	730,758	715,679	93,681	452,709	430,138 40,697
	Acid-type cleaners (containing an acid and/or wetting agent, and/or inorganic fillers):						
2841171	Dairy and food processing cleaners	do	35,268	34,908	5,379	(¹)	(¹) (NA)
2841175	Metal cleaners	do	50,491	51,228	8,828	(¹)	(¹) (NA)
2841179	All others	do	33,396	30,895	5,007	(¹)	(¹) (NA)
2841100	Alkaline detergents and acid-type cleaners, not specified by kind		xxx	xxx	4,484	xxx	xxx 2,814
28412	Soaps, except specialty cleaners, bulk		xxx	xxx	53,997	xxx	xxx 49,021
	Bulk soaps (packed in individual containers of over 25 lbs. and for liquids in individual containers of over 1 gal.):						
2841211	Chips and flakes	1,000 lbs.	101,802	105,670	11,652	121,192	124,215 12,550
2841224	Granulated, powdered, and sprayed, including washing powders	do	138,516	138,551	16,302	168,147	168,702 15,691
2841227	Liquid (potash and other, excluding shampoos)	1,000 gals.	11,270	10,809	14,776	11,640	11,588 12,142
2841231	Paste and jelly (potash and other, excluding mechanics' hand paste)	1,000 lbs.	36,194	36,719	4,355	36,370	35,428 3,299
2841241	Scouring cleansers with or without abrasives	do	4,863	5,031	1,515	10,955	10,834 979
2841298	Other soaps		xxx	xxx	3,358	xxx	xxx 1,179
2841200	Soaps, except specialty cleaners, bulk, not specified by kind		xxx	xxx	2,039	xxx	xxx 3,181
28413	Soaps, except specialty cleaners, packaged		xxx	xxx	313,582	xxx	xxx 331,034
	Packaged soaps, except specialty (packed in individual containers of 25 lbs. or less, and for liquids when in individual containers of 1 gal. or less):						
	Bars (excluding medical and medicated, mechanics' hand soap and shaving soap):						
2841301	Toilet (when less than 2 lbs. each):						
	Combinations of soap and synthetic organic detergents						
2841302	All types, including those products containing germicidal or other additives as a deodorant but not as a therapeutic ingredient and excluding combinations with synthetic organic detergents	1,000 lbs.	524,717	546,298	176,968	520,852	512,384 144,248
	Laundry and household:						
2841303	White (made with not more than 10 percent resin)	do	(²)	(²)	(²)	190,564	189,733 32,970
2841304	Yellow (made with more than 10 percent resin)	do	67,864	68,003	8,377	97,267	97,664 10,666
2841305	Other (including industrial)	do	3145,254	3148,540	327,279	41,458	42,514 3,699
	Medical and medicated soaps (containing medicinal or germicidal additives of therapeutic value, but not soaps containing germicidal or other additives as a deodorant):						
2841307	Bars	do	2,269	3,313	3,534	(²)	(²) (NA)
2841309	Liquid and paste	1,000 gals.	322	322	571	xxx	xxx (NA)
2841321	Chips and flakes	1,000 lbs.	44,384	45,281	13,943	74,186	74,916 22,008

(Continued on the following page)

Table 6A (Continued) — Quantity and Value of Products Shipped by All Manufacturing Establishments, for the United States: 1958 and 1954.

Product code	Product	Unit of measure	Production for all purposes (quantity)	1958		1954	
				Total shipments including interplant transfers		Production for all purposes (quantity)	Total shipments including interplant transfers
				Quantity	Value (\$1,000)		
2841324	Granulated, powdered, and sprayed, including washing powders	do	182,182	185,795	48,798	381,222	378,468 79,282
2841327	Liquid (potash and other, excluding shampoos)	1,000 gals.	2,435	2,424	7,253	2,011	1,993 2,753
2841331	Paste and jelly (potash and other, excluding mechanics' hand paste)	1,000 lbs.	4,713	4,711	855	10,144	9,694 1,339
2841341	Scouring cleansers with or without abrasives	do	(NA)	(NA)	2,080	115,756	111,890 9,959
2841371	Mechanics' hand soaps and pastes made with soap	do	89,377	87,620	17,874	62,308	60,945 12,745
2841381	Mechanics' hand cleaners made with detergents	do	(NA)	(NA)	1,820	32,854	32,477 5,833
2841398	Other soaps	do	xxx	xxx	1,278	9,883	9,835 1,055
2841300	Soaps, except specialty cleaners, packaged, not specified by kind			xxx	xxx	2,952	xxx xxx 4,477
28414...	Glycerine			xxx	xxx	70,374	xxx xxx 75,810
2841411	Crude, 100 percent basis (including synthetic)	1,000 lbs.	212,330	62,014	12,763	210,012	58,496 14,199
2841431	High-gravity, dynamite, and yellow distilled, 100 percent basis	do	44,782	45,484	12,060	60,516	60,435 18,179
2841451	Chemically pure 100 percent basis (including synthetic)	do	180,367	170,238	45,551	151,105	145,956 43,432
28415...	Synthetic organic detergents, packaged			xxx	xxx	793,698	xxx xxx 504,144
	Packaged synthetic organic detergents (packed in individual containers of 25 lbs. or less, and for liquids when in individual containers of 1 gal. or less):						
2841511	Liquid	1,000 gals.	70,066	68,297	176,615	9,056	8,968 35,864
2841513-19	Bars, paste and jelly	1,000 lbs.				3,748	3,392 2,082
2841518	Granulated, powdered, sprayed, chips, and flakes, including washing powders	do	2,502,390	2,474,854	555,892	2,161,143	2,135,425 432,550
284-553	Scouring cleaners with or without abrasives	do	429,602	418,648	59,886	304,770	289,075 31,231
2841500	Packaged synthetic organic detergents, not specified by kind			xxx	xxx	1,305	xxx xxx 2,417
28416...	Synthetic organic detergents, bulk			xxx	xxx	64,306	xxx xxx 41,159
	Bulk synthetic organic detergents (packed in individual containers of over 25 lbs. and for liquids in individual containers of over 1 gal.):						
2841611	Liquid	1,000 gals.	19,643	19,809	35,926	7,479	7,488 12,617
2841613	Bars	1,000 lbs.	(⁴)	(⁴)	(⁴)	6,558	6,536 1,012
2841618	Granulated, powdered, sprayed, chips, and flakes, including washing powders	do	136,803	132,444	17,522	153,986	145,180 21,195
2841619	Paste and jelly	do	(⁴)	(⁴)	(⁴)	13,070	13,226 2,012
2841653	Scouring cleaners with or without abrasives	do	42,149	41,467	7,126	6,813	6,562 640
2841600	Synthetic organic detergents, bulk, not specified by kind			xxx	xxx	3,732	xxx xxx 3,683
2841000	Soap and other detergents, except specialty cleaners, not specified by kind			xxx	xxx	6,804	xxx xxx 3,660
2842...	Specialty cleaning, polishing and sanitation preparations, except soap and detergents						
28421...	Household insecticides and repellents			xxx	xxx	85,918	xxx xxx 60,635
	Roach, ant, termite, and other household insecticides:						
2842112	Aerosols (net weight)	1,000 lbs.	(NA)	(NA)	25,376	19,600	19,587 15,554
2842115	Other	do	(NA)	(NA)	19,837	xxx	xxx 3,012
2842123	Repellents—insect, animal, bird, and fish			xxx	xxx	892	xxx xxx (⁵)
	Other insecticidal preparations:						
2842132	Moth Control agents			xxx	xxx	11,757	xxx xxx 12,874
2842142	Fly sprays	1,000 gals.	(NA)	(NA)	8,921	6,662	6,464 11,729
2842171	Rodent poisons	1,000 lbs.	(NA)	(NA)	8,269	6,974	6,851 3,344
2842189	Fumigants, other than soil fumigants (including space)	do	(NA)	(NA)	3,725	69,454	69,430 61,769
2842100	Household insecticides and repellents, not specified by kind			xxx	xxx	7,141	xxx xxx 511,976

Table 6A (Continued) — Quantity and Value of Products Shipped by All Manufacturing Establishments, for the United States: 1958 and 1954.

Product code	Product	Unit of measure	Production for all purposes (quantity)	1958		1954	
				Total shipments including interplant transfers		Production for all purposes (quantity)	Total shipments including interplant transfers
				Quantity	Value (\$1,000)		
28423...	Specialty cleaning and sanitation products		xxx	xxx	181,477	xxx	xxx (NA)
2842307	Waterless hand cleaners (made from petroleum solvent and soap or synthetic organic detergent and sulfonated oils)	1,000 lbs.	5,690	5,633	1,655 (1)	(1)	(1)
2842311	Glass window cleaning preparations	1,000 gals.	4,390	4,315	9,129 3,294	3,150	6,926
2842331	Toilet bowl cleaner and drain pipe solvents	1,000 lbs.	96,538	96,176	22,010 124,266	104,169	15,985
2842332	Disinfectants, for uses other than agricultural	1,000 gals.	(NA)	(NA)	38,234 xxx	xxx	23,024
2842341	Wall paper, window shade and wall cleaner	1,000 lbs.	(NA)	(NA)	(1) 83,396	86,967	16,155
2842371	Household ammonia	1,000 gals.	(NA)	(NA)	3,776 6,835	6,356	3,631
	Deodorants, nonpersonal:						
2842381	Aerosol type (net weight)	1,000 lbs.	(NA)	(NA)	12,509 3,110	2,842	2,386
2842385	Other	1,000 gals.	(NA)	(NA)	14,763 4,919	4,852	13,859
2842393	Dry cleaning spotting preparations (liquid)	do	2,388	2,260	6,238 4,270	4,264	8,174
2842398	Other specialty detergents, including sweeping compounds		xxx	xxx	62,213 xxx	xxx	19,112
2842300	Specialty cleaning and sanitation products, not specified by kind		xxx	xxx	10,950 xxx	xxx	9,417
2842...	Specialty cleaning, polishing and sanitation preparations, except soap and detergents—Continued						
28424...	Polishing preparations and related products		xxx	xxx	240,316 xxx	xxx	225,555
2842411	Automobile body polish and cleaners	1,000 lbs.	(NA)	(NA)	25,879 48,929	47,688	22,152
2842415	Furniture polishes and cleaners	do	34,798	35,757	14,677 32,525	32,136	17,129
	Floor polish:						
2842421	Water emulsion	1,000 gals.	34,741	35,499	69,748 37,902	37,404	69,030
2842423	Liquid (other than water emulsion)	do	11,701	11,775	24,296 10,248	10,292	18,071
2842425	Paste and cake	1,000 lbs.	17,511	17,206	6,056 22,220	22,180	6,643
2842429	Other	do	1,330	1,329	364 7,621	7,622	1,895
2842435	Metal polish (excluding stove polish)	do	10,039	10,010	3,617 25,051	25,005	6,421
	Shoe polishes and cleaners:						
2842442	Liquid	1,000 gals.	4,303	4,174	21,267 3,165	3,161	17,162
2842444	Paste and cake	1,000 lbs.	9,580	9,574	11,451 12,125	11,824	11,259
2842451	Chemically treated cleaning and polishing cloths and papers		xxx	xxx	3,341 xxx	xxx	4,404
	Leather dressings and finishes (excluding shoe polish):						
2842461	Leather blackings and stains	1,000 lbs.	24,354	24,326	5,929 22,331	21,919	6,428
2842465	Other leather dressings and finishes	do	36,092	35,874	11,473 37,148	36,486	10,960
2842498	Other polishing preparations and related products, nec		(NA)	(NA)	23,986 xxx	xxx	21,364
2842400	Polishing preparations and related products, not specified by kind		xxx	xxx	18,232 xxx	xxx	12,633
2842000	Specialty cleaning, polishing, and sanitation preparations, except soap and detergents, not specified by kind		xxx	xxx	28,623 xxx	xxx	12,876
2843...	Surface active agents, finishing agents, sulfonated oils and assistants, total		xxx	xxx	209,807 xxx	xxx	165,884
	Assistants and finishes, textile and leather:						
2843011	Sulfonated oils and fats	1,000 lbs.	173,206	165,458	29,708 139,951	134,964	23,852
2843031	Softeners, soluble oils and greases	do	100,588	100,263	19,270 101,806	91,157	16,386
2843051	Other assistants ^s	do	30,059	29,790	6,511 47,725	47,543	7,710
2843071	Finishes	do	36,797	36,753	8,431 36,055	35,622	8,317
	Bulk surface active agents other than sulfonated oils and fats:						
2843081	Primary for purposes other than for detergents (emulsifiers, penetrants, wetting agents, etc.) ^o		xxx	xxx	70,426 xxx	xxx	54,752
2843091	Primary for detergent purposes (finished weight) ^o		xxx	xxx	70,114 xxx	xxx	51,616
2843000	Surface active agents, finishing agents, and sulfonated oils and assistants, not specified by kind		xxx	xxx	5,347 xxx	xxx	3,251

(Continued on the following page) →

Table 6A (Continued) — Quantity and Value of Products Shipped by All Manufacturing Establishments, for the United States: 1958 and 1954

Product code	Product	Unit of measure	1958		1954	
			Total shipments including interplant transfers		Production for all purposes (quantity)	Total shipments including interplant transfers
			Quantity	Value (\$1,000)		
2844	Perfumes, cosmetics, and other toilet preparations		xxx	1,120,485	xxx	xxx
28441	Shaving preparations		xxx	74,944	xxx	xxx
	Soap or soap base:					
	Lather cream:					
2844131	Tube and jar	1,000 lbs.	5,292	5,980	5,395	5,532
2844135	Aerosols	do	24,412	22,417	18,836	18,167
2844141	Stick, powder, or cake	do	(NA)	3,560	4,199	4,239
	Shaving preparations, brushless (nonsoap base):					
2844152	Tube and jar	do	6,216	6,108	xxx	xxx
2844154	Aerosols	do	3,810	4,923	xxx	xxx
2844157	Aftershave lotions	1,000 gals.	2,189	27,836	1,902	1,851
2844159	Other shaving preparations, including styptics		xxx	4,120	xxx	xxx
28442	Perfumes, toilet water, and colognes		xxx	103,449	xxx	xxx
2844211	Perfume oil mixtures and blends		xxx	24,572	xxx	xxx
2844223	Perfumes (liquid and solid)		xxx	17,854	xxx	xxx
	Toilet waters and colognes:					
2844231	Liquid		xxx	56,239	xxx	xxx
2844235	Solid		xxx	1,809	xxx	xxx
2844200	Perfumes, toilet water, and colognes, not specified by kind		xxx	2,975	xxx	xxx
28443	Hair preparations (including shampoos)		xxx	315,795	xxx	xxx
	Shampoos:					
	Soap:					
2844312	Liquid		(NA)	26,435	xxx	xxx
2844314	Pastes, creams, and jellies		(NA)	956		
	Synthetic organic detergents:					
2844316	Liquid	1,000 gals.	6,475	49,350		
2844318	Pastes, creams, and jellies	1,000 lbs.	18,227	17,885	xxx	xxx
2844319	Other		xxx	1,475		
2844361	Wave set preparations		xxx	34,845	xxx	xxx
28444	Dentifrices, including mouthwashes, gargles, and rinses		xxx	197,835	xxx	xxx
2844411	Tooth paste	1,000 lbs.	112,873	156,712	78,872	77,964
2844431	Tooth powder	do	3,914	4,135	3,942	4,098
2844451	Denture cleaner	do	7,922	6,257	4,701	4,266
2844471	Mouthwashes, including gargles and rinses		xxx	1121,941	xxx	xxx
2844498	Other dentifrices, including liquid		xxx	8,199	xxx	xxx
2844400	Dentifrices, including mouthwashes, gargles, and rinses, not specified by kind		xxx	589	xxx	xxx
2844561	Bath salts, bath oils, and bubble bath		xxx	11,632	xxx	xxx

NA Not available. ¹Acid-type cleaners, codes 2841171, 2841175, and 2841179, and Waterless hand cleaners, code 2842307, were not reported separately in 1954, but were included with Other specialty detergents, code 2842398. ²Product code 2841307 included with code 2841301 in 1954. ³Product code 2841303 included with code 2841305 in 1954. ⁴Product code 2841613 and 2841619 have been combined with code 2841653 for 1958. ⁵In 1954 "Insect, animal, bird, and fish repellents" product code 2842123, are included with "Other household insecticides and repellents" product code 2842100. ⁶Code 2842189 for 1954 includes data for soil and other (including space) fumigants. ⁷Code 2842341 combined with 2842398. ⁸Includes figures for egg yolk, wetting agents,

water proofing emulsions, mordants other than tannic acid and an undetermined quantity of sizes, soaps, and synthetic detergents. ⁹Data on quantities produced and quantities and values shipped for many of the synthetic organic chemicals included in this grouping are shown in the United States Tariff Commission's annual report "Synthetic Organic Chemicals, United States Production and Sales." ¹⁰Code 2844154 included in code 2844159 for 1954. ¹¹Also see liquid antiseptics, code 2834929, Industry 2884, "Pharmaceutical Preparations." The 1958 total for code 2834929 is \$20,743 thousand compared with the 1954 figure of \$23,534 thousand. ¹²Code 2844516 included with code 2844519 in 1954.

number of surfactants which had been screened in laboratory tests. Although nonionics are excellent lime soap dispersants, they are not widely used in soap/syndet combinations, since they present formulating problems and adversely affect sudsing properties of the fin-

ished product. Most successful syndet additives to soap are sodium acyl isethionates and methyl taurates, Dr. Mayhew reported. In addition to good lime soap dispersing properties these surfactants exhibit good compatibility with soap, good foaming characteristics and dermal

properties. They impart good feel and improved detergency to the final combination bar, according to Dr. Mayhew. Successful combination bars may contain 75 per cent soap and 25% of either sodium acyl isethionate or methyl taurate.

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Hazardous Substances Labeling

What manufacturers should know about labeling household chemical specialties for safe use

By **E. G. Klarmann, Ph.D.***, Vice-President and Manager of Technical Services,
Lehn & Fink Products, Inc., New York

ON July 12th, 1960 President Eisenhower signed the "Federal Hazardous Substances Labeling Act." This statute, which became Public Law 86-613, is believed to be of direct interest to all active and to most associate members of the Chemical Specialties Manufacturers Assn.

Before reviewing the general philosophy as well as the specific requirements of the new statute, let it be noted that considerable instructive information relevant to these subjects will be found in the published reports of hearings before the Senate and House Committees of the U. S. Congress which preceded the passage of the Act (1,2,3,4). Moreover, some, introductory comments are deemed advisable for the sake of placing this most recent piece of legislation in its proper perspective.

Related Statutes

Even before the passage of the "Federal Hazardous Substances Labeling Act," legal requirements for precautionary labeling were operative under the provisions of other federal laws (and of corresponding state laws) of which the Federal Caustic Poison Act, and the Federal Food, Drug and Cosmetic Act merit brief reference here.

With respect to the origin of the oldest, the Federal Caustic Poison Act, it is tempting to recall that it was Dr. Chevalier Jackson, a noted Philadelphia otolaryngologist

whose efforts initiated the course of events which led eventually to the enactment of this statute. Having treated a number of children for severe burns caused by the ingestion of lye, Dr. Jackson became convinced that any such or similar caustic material for use in the household required a prominent cautionary poison label with an antidote statement. The forceful presentation of his clinical findings to several medical groups, and the effective campaign for the adoption of his recommendations resulted in the introduction in Congress of a bill which eventually became the Federal Caustic Poison Act of 1927. As is well known, this statute covered an even dozen of "dangerous caustic, or corrosive substances" including several mineral acids, sodium and potassium hydroxide and strong ammonia. Its enforcement was entrusted to the Food and Drug Administration.

Considering the status of chemical technology at the time of the enactment of the Federal Caustic Poison Act, and its application to chemicals likely to enter the average home, this law must have prevented a significant number of injuries or fatalities. However, since then a vast number of new chemicals have been adopted for different uses in the household. Many of these were bound to create hazards against which the ultimate user may not have been alerted by adequate cautionary labeling. Sometimes this inadequacy was due to a manufacturer's lack of awareness of the potentially injurious

character of a given product, sometimes to his apprehension that cautionary labeling might have an adverse effect upon the product's sales appeal. On the other hand, it should be granted in all fairness that the informed manufacturer has been, and continues to be, on the lookout for materials which would permit the formulation of a new or the reformulation of an established product in the direction of greater safety, if this can be achieved without the impairment of effectiveness for its intended use.

The second federal statute mentioned, viz. the Federal Insecticide, Fungicide and Rodenticide Act, operates in the very extensive area of pesticide control, and applies to a wide variety of different chemicals, including insecticides, fungicides, rodenticides, herbicides, disinfectants, and others. The U. S. Department of Agriculture administers and enforces this statute. In certain regulations and interpretations promulgated under the authority of this Act provision is made, among other things, for different cautionary statements on such chemicals. Their wording depends upon the degree of the hazard involved in the composition, as well as upon the manner of use of the products covered. Thus the toxicity hazards are classified not only with respect to the three routes of entry, viz. oral ingestion, inhalation, and skin absorption, but also with respect to the intensity of toxic action within these three categories. The specific cautionary labeling requirements are

*Paper presented during 47th annual meeting, Chemical Specialties Manufacturers Assn., Hollywood, Fla., Dec. 5, 1960. Dr. Klarmann is chairman of the Precautionary Labeling Committee of CSMA.

correlated directly with these routes of entry and with the intensity of toxic response as obtained in tests on certain animals.

The third federal statute to be singled out for mention is the Federal Food, Drug and Cosmetic Act. It is enforced by the Food and Drug Administration, a division of the U. S. Department of Health, Education and Welfare. With respect to the labeling of drugs, this statute affords wide protection to the user because of a mandatory requirement for the disclosure of the qualitative formula on the label. This, of course, enables the physician to apply proper treatment in the case of either accidental or intentional poisoning.

For the sake of completeness it might be added that the powers of the Food and Drug Administration have been extended in the recent past, first by the Pesticide Chemicals Amendment of 1957, and subsequently by the Food Additives Amendment of 1958. While the former establishes allowable tolerances for pesticides in crops, the latter applies to chemicals (and other substances) entering into processed foods, and requires, among other things, submission of evidence as to the safety of any food additive which has not had an unquestioned prior record of such safety.

In addition to the federal laws which apply in interstate commerce, practically every state of the Union has its own corresponding laws which are usually patterned along the lines of the federal acts mentioned. There are also other state laws and municipal ordinances which relate specifically to the handling of poisonous materials.

The "Gray Area"

Although the different laws mentioned up to this point provide very extensive precautionary coverage, there existed until recently a "gray area" of chemical hazards against which the public does not appear to have been protected adequately. In essence, this area may

New Surfactants . . .

By John W. McCutcheon

Part V. Conclusion

be described as one of common chemical household products which serve their proper purposes when used as intended, but which may become dangerous, if misused. It encompasses a great number of unrelated articles of daily use, such as floor and furniture polishes, dry cleaning agents (for fabrics, rugs and upholstery), paints, paint solvents and thinners, toilet bowl cleaners, drain openers, silver brighteners, rust removers, automobile antifreezes, and many others. While the particular *type* of product does not determine its potential capacity for harm, its *composition* may cause it to figure prominently in some of the many accidental poisonings occurring annually. And, as is well known, infants and small children constitute a large proportion of victims, for obvious reasons (5).

While many publications have appeared dealing with the epidemiology of poisoning accidents, reference may be made here to a recent (May 1960) Bulletin of the National Clearing House for Poison Control Centers (a bureau maintained by the U. S. Public Health Service) (6). According to this source, the reports of accidental ingestion in children under five years of age which occurred in the period of 1954 to 1958, may be broken down as follows:

Approximately one-half of all the poisoning accidents were caused by different kinds of medicines (of which aspirin was the most frequently ingested). Household cleaning and polishing agents accounted for 17 percent of the accidents. Straight petroleum products accounted for six percent of the poisoning accidents, and kero-

sene accounted for one-half of these.

Estimates of the fatalities vary; however, it may be assumed for statistical purposes that the non-fatal cases outnumbered the fatal ones by about five-hundred to one (7).

This then is the "gray area" which needed covering, and which now is covered by the new Federal Hazardous Substances Labeling Act. The professed purpose of this Act is "to regulate the interstate distribution and sale of packages of hazardous substances intended and suitable for household use."

The Federal Hazardous Substances Labeling Act

Following is a brief analysis of some of the more important features of this Act.

A substance is deemed to be "hazardous," if it is toxic, corrosive, irritant, strongly sensitizing, flammable or capable of generating pressure through decomposition, heat or other means, and if, as a result of any such property (or combination of properties), it may cause substantial injury or illness in the course of any customary or reasonably foreseeable handling or use, including "reasonably foreseeable ingestion by children." Thus in order to come under the basic definition of a "hazardous substance" a household product must meet two requirements: It must be inherently hazardous within one or more of the above six categories, and it must be capable of causing substantial injury or substantial illness.

The reason for the adoption of the qualifying term "substan-

(Turn to Page 111)

Detergents & Emulsifiers . . .

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks	
Stabafome	Maher Color & Chemical Co.	Alkanolamine alkyl sulphate	Foam Stabilizer	Liquid	40%	Anionic	For cosmetic use.	
Stanson Suds	Stanson Chemicals Co.	A built compound	Detergent	Granular	Anionic	Low foaming detergent for automatic laundering.		
Stanzal	Stanson Chemicals Co.	A built compound	Detergent	Granular	Nonionic	Low foaming detergent for automatic laundering.		
Stedbac	Fine Organics, Inc.	Stearyl dimethyl benzyl ammonium chloride	Powder	100%	Cationic	Chief ingredient for after shampoo cream rinse, and hair conditioner.		
Stepanate K	Stepan Chemical Co.	Potassium toluene sulfonate	Hydrolyope	Liquid	40%	Anionic	Solubilizer and coupling agent.	
Sterox AP	Monsanto Chemical Co.	Polyoxyethylene ether	Detergent	Liquid	85%	Nonionic	High foamer with solubilizing properties; used in liquid detergent formulations.	
Sterox AP-100	Monsanto Chemical Co.	Polyoxyethylene ether	Detergent	Paste	100%	Nonionic	"AP-100" is 100% active form of "Sterox AP".	
Sterox DF	Monsanto Chemical Co.	Alkyl phenol ethylene oxide adduct	Detergent	Liquid	100%	Nonionic	Very soluble in nonpolar solvents; intermediate for sulfation to produce high foam liquid detergents.	
Sterox DJ	Monsanto Chemical Co.	Alkyl phenol ethylene oxide adduct	Detergent	Liquid	100%	Nonionic	Very low foamer used in textile, paper, metal cleaning and leather processing.	
Sterox NJ	Monsanto Chemical Co.	Alkyl phenol ethylene oxide adduct	Detergent	Liquid	100%	Nonionic	Use: dry and liquid detergents, textile, paper and metal cleaning.	
Sterox NL	Monsanto Chemical Co.	Alkyl phenol ethylene oxide adduct	Detergent	Liquid	100%	Nonionic	Medium foamer designed primarily for use in liquid detergents.	
Sulamidol 221	Apex Chemical Co.	A built sulfated fatty amide	Wetting Detergent	Paste	20%	Anionic	Textiles; scours, penetrates and softens in one operation.	
Sulfanole S Gel, Conc.	Warwick Chemical Co., div., Sun Chemical Corp.	A fatty amine condensate	Detergent Emulsifier	Liquid	100%	Anionic	Textiles.	
Sulfated Decyl Alcohol	Helene Curtis Industries, Inc.	As in name					Shampoo.	
Sulfonate LC	Sun Oil Co.	Sodium salt of a sulfonated oil soluble petroleum distillate	Dispersant Emulsifier	Liquid	62%	Anionic	Rust inhibitor, and emulsifier, and sludge dispersant for cutting oils, insecticide formulations, fuel oil additives, flotation agent, etc.	
Sulfonic Acids	Continental Oil Co.	Dodecylbenzene sulfonic acid	Detergent Intermediate	Liquid	88-95%	Anionic	Used for compounding detergents	
Sultopon 200	Fallek Products Co.	Mixture of washing active substances	Detergent	Paste	20%	Anionic	Detergents and cleaning agents.	
Sultotex HD	Textilane Corp.	Isohexadecyl sulfonate salts	Wetting Emulsifier	Paste	Anionic	High wetting, oil and water soluble emulsifier.		
Sultotex HDG	Textilane Corp.	Isohexadecyl sulphoxylate sulfonate salts	Detergent	Paste	Anionic	For liquid detergents and shampoos.		
Sultotex AS-60		Sulfated alkylphenol ethoxylate	Liquid	60%	Anionic	Forming and detergency agent in liquid formulations also antistatic agent.		
Sultotex S-60	Textilane Corp.	Alkyl benzenesulfonate amine salt	Detergent	Liquid	60%	Anionic	Base for detergents, shampoos.	
Sultotex WA		Lauryl sulfate salts	Detergent	Paste	Anionic	High foaming detergents for use in shampoos, etc.		
Sultotex TDE		Triethyl oxyethylate sulfonate salts	Detergent	Liquid	21%	Anionic	A detergent with high soil tolerance.	
Sultramin NS	Ultra Chemical Works, Inc.	Modified sodium naphthalene sulfonate	Wetting	Liquid	25%	Anionic	Textile products for wetting out, etc.	
NP			Wetting	Liquid	34%	Anionic	"NP" particularly useful for package dyeing, NP for hard-to-wet-out fabrics, etc.	

Detergents & Emulsifiers . . .

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Super Amide B-5	Onyx Chemical Corp.	High activity coconut fatty acid diethanolamine condensate	Foam Stabilizer Emulsifier Thickener	Paste	90%	Nonionic	General cosmetic use; shampoos, bubble baths, etc.; household and industrial cleaning compounds; buffing and polishing formulations.
Superclene	Cowles Chemical Co.	A built compound	Detergent	Powder	Anionic	High sudsing general cleaner, formulated especially for cleaning in hard water.	
Superfome	Maher Color & Chemical Co.	Modified salt free lauryl sulphate	Detergent	Liquid	100%	Anionic	Quality detergent and foaming agent for cosmetic formulation.
Surco 56	Surfact Co.	A built product	Detergent	Liquid	56%	Anionic	Built floor cleaning preparation formerly known as "Scrubanol."
Surco AM	Surfact Co.	Ammonium lauryl sulfate	Detergent	Liquid	30%	Anionic	For detergent base manufacture.
Surco DBSA	Surfact Co.	Dodecyl benzene sulfonic acid	Detergent Intermediate	Liquid	88%	Anionic	Shampoo base material; high foam; general detergent base.
Surco HDL	Surfact Co.	Compound	Detergent	Liquid	48%	Anionic	Heavy duty detergent for laundry use.
Surco L	Surfact Co.	Compounded product	Detergent	Liquid	38%	Anionic	Product designed for dishwashing use.
Surco SLS	Surfact Co.	Sodium lauryl sulfate	Detergent	Paste	30%	Anionic	Detergent base for shampoos, cosmetics, etc.
Surco TEA-LS	Surfact Co.	Triethanolamine lauryl sulfate	Detergent	Liquid	40%	Anionic	
Surco Stabilizer Z	Surfact Co.	Lauric diethanolamide	Emulsion Stabilizer	Solid	100%	Anionic	Foam stabilizer and detergent assistant.
Surfact CO 60	Surfact Co.	Triethanolamine alkyl aryl	Detergent	Liquid	60%	Anionic	High foam shampoo base.
Surfonic LF-Series	Jefferson Chemical Co.	Alkyl phenol polyoxyalkylene ether	Emulsifier Wetting Detergent	Liquid	100%	Nonionic	Useful in aqueous systems requiring a low foaming wetting and detergent agent; used by formulators of metal cleaners, latex paints and industrial and home mechanical dishwashing compounds.
Surfonic TD-30	Jefferson Chemical Co.	Alkyl polyethylene glycol ether	Wetting Emulsifier Detergent	Liquid	100%	Nonionic	Oil soluble detergent and emulsifier, an anti-foaming agent.
Surfonic TD-60	Jefferson Chemical Co.	Alkyl polyethylene glycol ether	Detergent Emulsifier	Liquid	100%	Nonionic	Wetting, dispersing and emulsifying agent.
Surfonic TD-90	Jefferson Chemical Co.	Alkyl polyethylene glycol ether	Emulsifier Wetting Detergent	Liquid	100%	Nonionic	Water soluble, wetting agent, dispersing agent and emulsifier.
Surfonic TD-120	Jefferson Chemical Co.	Alkyl polyethylene glycol ether	Emulsifier Detergent	Semi-solid	100%	Nonionic	Water soluble, wetting agent, dispersing agent and emulsifier.
Surfonic TD-150	Jefferson Chemical Co.	Alkyl polyethylene glycol ether	Emulsifier Detergent	Solid	100%	Nonionic	Water soluble, wetting agent and emulsifier, with foaming properties.
Surlynol 61	Air Reduction Chemical Co.	Dimethyl hexynol	Wetting Dispersant Stabilizer	Liquid	100%	Nonionic	Volatile wetting and dispersing agent for floor polishes, glass cleaning formulations; viscosity control.
Synolex	Dixo Co.	A compounded product	Emulsifier	Liquid	Nonionic	Used as a pre-spotting agent, emulsifier, wetting agent and detergent by the dry cleaning industry.	
Syn-O-Tol AV-60	E. F. Drew & Co.	Amine condensate	Detergent	Liquid	100%	Anionic	Minimum amide contents of 60%, 80% and 90% respectively; synergists, thickeners, foam stabilizers and hard water softeners.
AV-80							Detergent for all textile wet processing operations.
AV-90	E. F. Drew & Co.	A coconut fatty acid amino condensate	Detergent	Liquid	100%	Anionic	Minimum amide content 80%; low free amine content, light color, foam and viscosity builder.
Syn-O-Tol CR	E. F. Drew & Co.	Coconut oil monooethanolamide	Detergent Emulsifier	Flake	100%	Nonionic	
Syn-O-Tol ME-80	E. F. Drew & Co.						

Detergents & Emulsifiers . . .

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Syn-O-Tol SM	E. F. Drew & Co., Inc.	Stearamide	Emulsifier Opacifier	Solid	100%	Nonionic	Emulsifier and opacifier for shampoos, detergents and soaps.
Syn-O-Tol V/LS	E. F. Drew & Co., Inc.	Amine condensate	Softener Detergent	Liquid	100%	Anionic	Imparts soft hand to woolens; stable to lime; for carbonizing; continuous crabbing of "Dacron"; worsted blends.
Synthramine A	Arnold, Hoffman & Co.	Cetyltrimethylammonium bromide	Leveling	Paste	50%	Cationic	Retardant, leveling agent and stripping agent for dyestuffs
Synthrapol BC	Arnold, Hoffman & Co.	Ethylene oxide condensate	Detergent Penetrant	Liquid	Nonionic	Penetrating assistant for pulp deresination; detergent	
Synthrapol GP	Arnold, Hoffman & Co.	Polyoxyethylated nonyl phenol	Detergent Wetting Dispersant	Liquid	100%	Nonionic	General purpose surfactant; detergent, wetting agent, emulsifier, and dispersant
Synthrapol N	Arnold, Hoffman & Co.	Ethylene oxide condensate	Detergent Wetting	Liquid	Nonionic	General purpose detergent and wetting agent	
Synthrapol RWP	Arnold, Hoffman & Co.	Ethylene oxide condensate	Detergent Wetting	Liquid	Nonionic	Low foaming rewetting agent and detergent for paper and textiles	
Synthrapol SP	Arnold, Hoffman & Co.	Blend of nonionic and anionic surfactants	Rewetting Detergent	Liquid	Anionic	Detergent and wetting agent scouring agent for vat and azoic-dyed fibers	
T-743-FLT	DuBois Chemicals, Inc.	Built detergent	Detergent	Liquid	Anionic	For washing and conditioning of paper mill felts	
T-743-S		Built detergent	Detergent	Liquid	Anionic	Exterior cleaning of aircraft	
T-KAL		As in name, K salt	Sequestrant	Liquid	Anionic	Used in highly alkaline solutions	
Tallates, K	Phoenix Oil Co.	As in name, K salt	Detergent Emulsifier	Paste Liquid	46% 29% 46%	Anionic	Emulsifier for petroleum and agricultural products
Tauranol ML MG WL	Finetex, Inc.	Sodium N-methyl-N-alkyl-taurates	Detergent	Paste Liquid	46% 29% 46%	Anionic	Cover wide range of detergent applications where high foam and good stability are required; alkyl groups as follows: "ML & MG" and "WL" coconut oil acid
Teac-90	Gray Chemical, Inc.	An organic salt derived from selected acids and amines	Sequestrant	Liquid	90%	Anionic	Sequestering agent for polyvalent metallic and alkaline-earth ions
Tenlo 68-S	Griffin Division of Nopco Chemical Co.	Polyhydric alcohol ester	Wetting	Liquid			
Tenn-Acid 855	Tennessee Corp.	Alkyl aryl sulfonic acid	Detergent Base	Liquid		Anionic	Designed for compounding and others manufacturing cleaning compounds
Tergitex	Scher Brothers	Sulfonated fatty amine	Penetrant	Paste		Anionic	Detergent, wetting and penetrating agent
Tergitex W	Scher Brothers	Modified E. O. condensate	Detergent Emulsifier	Liquid	50%	Nonionic	Wool washing for oil removal and softening in a single operation
Tergitol NP-44	Union Carbide Chemicals Co.	Nonyl phenyl polyethylene glycol ether	Detergent Wetting	Solid	100%	Nonionic	Highly water-soluble detergent and wetting agent at elevated temperatures in presence of dissolved electrolytes; cloud point > 115
Tergitol TP-9	Union Carbide Chemicals Co.	Nonyl phenyl polyethylene glycol ether	Wetting Detergent Emulsifier Dispersant	Liquid	100%	Nonionic	Water-soluble detergent, wetting agent and emulsifier; textile scouring, household and industrial detergents emulsion polymerization; emulsifier for agricultural concentrates; pigment dispersant, leather processing. For use at slightly lower temperatures than with "Tergitol NPX".

Detergents & Emulsifiers . . .

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Tesapon A	Chemical Developments of Canada, Ltd.	Lauric diethanolamide	Foam Stabilizer	Wax	100%	Nonionic	Foam stabilizer and viscosity modifier in liquid detergents and shampoos
Tesapon A Extra	Chemical Developments of Canada, Ltd.	Lauric diethanolamide	Foam Stabilizer	Wax	100%	Nonionic	High amide content foam stabilizer and viscosity modifier
Tesapon B	Chemical Developments of Canada, Ltd.	Coconut diethanolamide	Detergent	Liquid	100%	Nonionic	Base for the manufacture of floor cleaners and general purpose detergents
Texaphor	Fallek Products Co.	Fatty alcohol sulphate	Anti-settling	Liquid	28%	Anionic	Anti-settling agent for paints
Texapon Extra M	Fallek Products Co.	Monoethanolamine lauryl ether sulfate	Detergent	Liquid	30%	Anionic	Liquid shampoos
Texapon Extra MG	Fallek Products Co.	Magnesium lauryl ether sulfate	Detergent	Liquid	24%	Anionic	Liquid shampoos
Texapon Extra NA	Fallek Products Co.	Ammonium lauryl ether sulfate	Detergent	Liquid	35%	Anionic	Liquid shampoos and bubble baths
Texapon Extra NT	Fallek Products Co.	Triethanolamine lauryl ether sulfate	Detergent	Liquid	50-55%	Anionic	Liquid shampoos and bubble baths
Texapon Extra T	Fallek Products Co.	Lauryl alcohol triethanolamine sulfate	Detergent	Liquid	22%	Anionic	Emulsion and pearl shampoos
Texapon BS	Fallek Products Co.	Sodium lauryl ether sulfate	Detergent	Liquid	28-30%	Anionic	Liquid shampoos
Texapon Q	Fallek Products Co.	Fatty alcohol sulfate	Detergent	Liquid			
Textamide PL	Textilana Corp.	High active lauric isopropanolamide	Foam Stabilizer	Flakes	100%	Nonionic	Soften and conditioning in built detergents, especially solids
Textamide EL	Textilana Corp.	High active lauric ethanolamide	Foam Stabilizer	Flakes	100%	Nonionic	Soften and conditioning in built detergents, especially solids
Textamine A-5	Textilana Corp.	Fatty glyoxalidine	Emulsifier	Liquid	100%	Cationic	Oil soluble anticorrosive; acid soluble
Textamine A-5-D	Textilana Corp.		Emulsifier	Paste	100%	Cationic	
O-5	Textilana Corp.		Emulsifier	Liquid	100%	Cationic	Rust and bacteria control in oil or brine systems, water soluble salts
Textamine C-18	Textilana Corp.	Fatty amido amine	Emulsifier	Liquid	100%	Cationic	Corrosion inhibitor, emulsion breaker, asphalt wetting agent
Textamine FPA	Textilana Corp.	Fatty amido amine	Emulsifier	Liquid	100%	Cationic	Bacteria control in oil and water systems; flotation
Textamine DP	Textilana Corp.	Complex resinous fatty amine	Wetting	Liquid	100%	Cationic	Designed for use with agricultural insecticides and herbicides. "SW-7S" is designed for use with 24-D and 24-5-T herbicide formulations; and "SW-6S" for parathion insecticides
Textamine 1839	Textilana Corp.	Fatty amido amine (tertiary)	Bacteriostat	Liquid	100%	Cationic	
T-H Emulsifier	Thompson-Hayward Chemical Co.	A blend of anionic and nonionic products	Emulsifiers	Liquid		Anionic	
SW-6S	Universal Chemicals Corp.	Fatty-nitrogen complex	Wetting	Liquid	70%	Cationic	Oil soluble wetting agent, asphalt additive, paint and rubber additive
SW-7S			Emulsifier	Liquid			Versatile insecticide emulsifier
Toximul 600	Stepan Chemical Co.	Sulfonated nonionic blend	Emulsifier	Liquid			Emulsifier pair for chlorinated insecticides
Toximul A & B	Stepan Chemical Co.	Sulfonated nonionic blend	Emulsifier	Liquid			An all-purpose pair for chlorinated and phosphated toxicants also herbicides
Toximul R & S	Stepan Chemical Co.	Sulfonated nonionic blend	Emulsifier	Liquid			
Trem 014R: 110-618A; 619, 1421	Griflin Division of Nopco Chemical Co.	Polyhydric alcohol esters	Emulsifiers	Liquid	39.41% 50-55%	Anionic	For agricultural emulsifiable insecticide concentrates
Trepolate AM	Trepow Products, Inc.	Ammonium salt of dodecylbenzene sulfonic acid	Detergent	Liquid			Useful in liquid light duty detergents; "Trepolate AM HC" is high concentrated form of "Trepolate AM"
AM HC							Mild antioxidant, decomposing with strong oxidizing agents, and slowly in the cold with strong acids or alkalis; preservative in cosmetics and pharmaceuticals
Triamite	Guardian Chemical Corp.	A stabilized mixture of esterified and free aromatic carboxylic acids	Germicide	Powder	100%	Anionic	

Detergents & Emulsifiers . . .

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Tri-A-Nol 38	Scholler Brothers, Inc.	Blend of anionic and nonionic surfactants	Wetting Detergent	Liquid	34%	Anionic	Textile wetting agent with detergent and emulsifying properties
Tri-A-Nol 87	Scholler Brothers, Inc.	Buffered alkali-reinforced sulfonated fatty acid	Detergent Penetrant	Liquid	39%	Anionic	Hosiery scouring and dyeing assistant
Tri-A-Nol AL	Scholler Brothers, Inc.	Ethoxylated fatty acid	Detergent Emulsifier	Liquid	99%	Nonionic	Textile scouring all fibers, free rinsing
Tri-A-Nol CC	Scholler Brothers, Inc.	Alkanolamide fatty acid condensate	Detergent	Liquid	30%	Nonionic	Textile scouring, light duty scour for all fibers.
Tri-A-Nol DBS	Scholler Brothers, Inc.	Buffered alkali-reinforced blend of sulfonated oils	Detergent Penetrant	Liquid	40%	Anionic	Textile scouring, component of one-bath hostery sour and dye formulations
Tri-A-Nol MT	Scholler Brothers, Inc.	Alkanolamide condensate of coconut fatty acid	Detergent	Liquid	95%	Nonionic	Concentrated, general purpose detergent
Tri-A-Nol SB	Scholler Brothers, Inc.	Builyl alkyl aryl sulfonate	Detergent Detergent	Powder Liquid	89% 65%	Anionic Anionic	Textile scouring, dyeing assistant
Tri-A-Nol X		Compounded alkyl aryl sulfonate					Textile scouring, dyeing assistant
Tridecyl phosphoric acid	Leyda Oil & Chemical Co.	As in name	Emulsifier Intermediate	Liquid	100%	Anionic	Acidic raw material for preparing emulsifiers with rust inhibiting properties
Trisulphoil XX	Scholler Brothers, Inc.	Sulfonated castor oil	Dispersant Penetrant	Liquid	42%	Anionic	Emulsifying, penetrating and dispersing agent, textile dyeing assistant
Trisco VS	Scholler Brothers, Inc.	Sulfonated cetyl alcohol	Emulsifier Dispersant	Paste	41%	Anionic	Emulsifying, penetrating and dispersing agent, textile dyeing assistant
Triton N.101	Rohm & Haas Co.	Nonyl phenyl polyethoxy ethanol	Wetting Detergent	Liquid	100%	Nonionic	Household and industrial cleaners, textile processing, emulsifying agent for pesticides
Triton N128	Rohm & Haas Co.	Nonyl phenyl polyethoxy ethanol	Wetting Detergent Emulsifier	Liquid	100%	Nonionic	Metal cleaning, industrial and household liquid detergents and cleaners
Triton QS-15	Rohm & Haas Co.	Oxyethylated sodium salt, amphoteric, containing both anionic and cationic centers	Detergent	Liquid	100%	Amphoteric	Good detergency, solubility and stability in aqueous solutions of strong alkali-including caustic
Triton X.15	Rohm & Haas Co.	Octyl phenyl polyethoxy ethanol	Emulsifier	Liquid	100%	Nonionic	Formerly "OPE-1"; water insoluble emulsifier, coupling agent
Triton X.35	Rohm & Haas Co.	Octyl phenyl polyethoxy ethanol	Emulsifier	Liquid	100%	Nonionic	Formerly "OPE-3"; water insoluble, emulsifier, coupling agent
Triton X.152, X.172	Rohm & Haas Co.	Blended alkyl aryl polyether alcohols with organic sulfonates	Emulsifier	Liquid		Anionic	Used alone or in combination with "Triton X-172" in a wide range of emulsifiable concentrates for insecticide applications
Triton X.165 X.205 X.305	Rohm & Haas Co.	Octyl phenyl polyethoxy ethanol	Detergent Emulsifier Wetting	Liquid	70%	Nonionic	Higher water solubility; surfactant usages where maximum water solubility is needed, and at elevated water temperatures
Turkey Red Oil	Apex Chemical Co., Inc.	Sulfonated castor oil	Wetting Penetrant	Liquid	38-75%	Anionic	Textiles; penetrant and softening agent
Turkey Red Oil PO	Imperial Chemical Industries, Ltd.	Turkey red oil with pine oil	Wetting	Liquid		Anionic	General wetting, penetrating and leveling agent
Ultravon JU	Ciba Co.	Nonionic condensation product of an aromatic oxy compound	Penetrant Detergent	Liquid	25%	Nonionic	A textile kier-boiling assistant; dye leveling; or wetting out agent
Ultravon W	Ciba Co.	Sulphonated benzimidazol derivative of a higher fatty acid	Dispersant Detergent	Paste	25%	Anionic	A neutral washing and dispersing agent; dyeing assistant; kier-boiling assistant; leveling action, anti-smutting agent in aluminum industry

Detergents & Emulsifiers . . .

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Ultrawet KX	Atlantic Refining Co.	Alkyl benzene sodium sulfonate	Detergent Wetting	Flake	90%	Anionic	High molecular weight; high foam and detergency with good solubility
Ultrawet 35K	Atlantic Refining Co.	Alkyl benzene sodium sulfonate	Detergent Wetting	Liquid	31.5%	Anionic	Liquid form of "Ultrawet K"
Umepon CC	Valchem Inc.	Amine condensate	Detergent	Liquid	100%	Nonionic	Industrial cleaning agent; usages; compounding
UniChem	Universal Chemicals Corp.	Fatty alkyl amide	Detergent Wetting	Liquid	100%	Nonionic	Textile-detergent, wetting, emulsifying; scouring wool, cotton, synthetics; foam stabilizer
Unicote	Universal Chemicals Corp.	Fatty nitrogen complex	Detergent Wetting	Liquid	80%	Cationic	Oil soluble wetting agent; water displacing compound; cationic oil soluble surfactant
Uniterge	Universal Chemicals Corp.	Fatty amino acid complex	Detergent	Liquid	40%	Amphoteric	Amphoteric detergent for cotton, wool and synthetics; mercerizing penetrant; leather; paper; metal
Univadine W	Ciba Co.	Nonionic condensation product	Penetrant	Liquid	60%	Nonionic	Leveling and penetrating agent in acid dyeing on wool and polyamides especially for mixtures of different dyestuff classes
Uniwax	Universal Chemicals Corp.	Fatty amide complex	Antistatic Emulsifier	Wax	100%	Cationic	Special waxes for compounding nonionic and cationic softeners; antistatic agents, paper deloafing
Utiloam K	Utility Chemical Co.	Compounded product	Detergent	Powder	Anionic	Hand dishwashing; general cleaner	
Utilosan	Utility Chemical Co.	Compounded product	Detergent	Powder	Anionic	General all purpose cleaner	
Vantoc AL	Imperial Chemical Industries, Ltd.	Alkyl trimethyl ammonium bromides	Bactericide	Liquid	10%	Cationic	Bactericide for use in food and drink processing plants
Vantoc B	Imperial Chemical Industries, Ltd.	Tetradecylpyridinium bromide	Bactericide	Liquid	12.5%	Cationic	Bactericide for the treatment of beverage glasses, bar sinks and counters
Vantoc CL	Imperial Chemical Industries, Ltd.	Lauryldimethylbenzyl ammonium chloride	Bactericide	Liquid	50%	Cationic	Bactericide for use in food and drink processing plants
Vantoc N	Imperial Chemical Industries, Ltd.	Alkytrimethyl ammonium bromide	Bactericide	Powder	90%	Cationic	Powder grade of Vantoc AL
Vantropol BQ	Imperial Chemical Industries, Ltd.	Nonionic detergent with quaternary ammonium bactericide	Bactericidal Detergent	Liquid	Cationic	Bactericidal detergent for catering industry	
Velvetex BC	Textilana Corp.	Lauryl betaine	Wetting	Liquid	60%	Foaming, acid, alkali, salt compatibility; lime dispersant	
Velvetex BH	Textilana Corp.	Alkyl amido betaine	Softener	Liquid	60%	Textiles, shampoos, hair luster agent	
Versenex 80	Dow Chemical Co.	Pentadecyl salt of ethylenetriamine pentaacetic acid	Chelating agent	Liquid	Anionic	Inactivates polyvalent metal ions in the pH range below 12.0. Especially useful where greater chelate stability is desired, as in bleach stabilization	
Vestal Liquid Detergent	Vestal, Inc.	A built syndet soap	Detergent	Liquid	16.7%	Anionic	Heavy-duty all purpose detergent
Viscolan	American Cholesterol Products, Inc.	Liquid lanolin	Lubricant	Liquid	100%	Nonionic	Extracted liquid lanolin esters, general cosmetics and pharmaceutical applications
Waxolan	American Cholesterol Products, Inc.	Hard fraction of lanolin	Emulsifier Softener	Wax	100%	Nonionic	Extracted wax lanolin esters for general cosmetics and pharmaceutical applications; wax emulsions, shoe polish, agricultural coatings
Wettex 40X	Essential Chemicals Co.	Special alkyl aryl wetting agent	Dusting Wetting Non-caking	Powder	40%	Anionic	Extra fine powdered wetting agent for dusting compounds in agricultural and insecticide fields

Detergents & Emulsifiers . . .

Trade Name	Manufacturer	Class and Formula	Main Uses	Form	% Conc.	Type	Remarks
Wettex 85P	Essential Chemicals Co.	Phosphated alkyl aryl sulfonate	Wetting Detergent	Powder	85%	Anionic	A phosphated powdered base for high active wetting agent powdered cleaners; cloud free; also used in liquids
Wettex 85S	Essential Chemicals Co.	High active alkyl aryl sulfonate	Detergent Wetting	Powder	85%	Anionic	A high active wetting agent for powdered cleaners, also used in liquids
Wicatex DVN	Wica Chemicals, Inc.	Ethylene oxide adduct	Wetting Detergent	Liquid	55%	Nonionic	Textiles, dyeing, bleaching, scouring assistant
Wilmar GMS-65, GMO-65 Wilmar GTO Wilmar oleates	Wilson-Martin Division Wilson-Martin Division Wilson-Martin Division	High mono glyceryl stearate (GMS) Glyceryl trioleate Butyl, propyl and isopropyl oleates	Wetting	Solid	65%*	Nonionic	Emulsifying agents for the food and cosmetic industry. *On mona content
Wilmar Isomyst and Isopalmit	Wilson-Martin Division	Isopropyl myristate Isopropyl palmitate	Wetting Emulsifier Intermediate	Liquid Liquid	100% 100%	Nonionic Nonionic	Base for sulfonated textile, scouring, etc. Base for sulfonated textile surfactants
Wilmid 111; 211; 311; 411 Wilmid 513 513DO Wilmid T-TDO	Wilson-Martin Division Wilson-Martin Division Wilson-Martin Division	Substituted imidazoline Substituted imidazoline Substituted imidazoline Polyalkylene amine	Wetting Emulsifier Emulsifier	Liquid	100%	Nonionic	Wetting and spreading agents for cosmetics, pharmaceuticals, odorants, non-greasy topical carriers
Witco 912	Witco Chemical Co.	Anionic-nonionic blend of polyoxy- ethylene esters of mono and di- carboxylic acids plus oil soluble sulfonates	Emulsifier Emulsifier Emulsifier Emulsifier Wetting	Paste Solid Liquid Solid Paste	100% 100% 100% 100% 100%	Cationic Cationic Cationic Cationic Cationic	Wetting agents, germicide, algicide, emulsifier, corrosion inhibitors Asphalt emulsifier, corrosion inhibitor Corrosion inhibitor, metal treating compounds, etc.
Witco 918	Witco Chemical Co.	Amine salt of alkyl aryl sulfonic acid	Emulsifier	Liquid	Anionic	Low foamer — "Methocel" dispersant, wetting agent for pigments	
Witco 934 Witco 936	Witco Chemical Co. Witco Chemical Co.	Alkanolamine condensate Fatty amide derivative	Emulsifier Emulsifier	Liquid Liquid	Nonionic Anionic	Used for universal tube color acceptance in latex paint tint bases Prevents floating and flooding of colors in alkyd and oleoresinous finishes	
Woonco SA Wooncopal	Woonsocket Color & Chemical Co.	Alkylolamide alkyl aryl sulfonate Ethylene oxide condensate	Detergent Detergent	Liquid Liquid	Anionic Nonionic	Scouring agent	
Wooncopen #100 Wooncopen GEL Wooncopen D, DN Wooncopen GW Wooncopen LA Wooncopen LS Wooncopal NCB	Woonsocket Color & Chemical Co. Woonsocket Color & Chemical Co. Woonsocket Color & Chemical Co. Woonsocket Color & Chemical Co. Woonsocket Color & Chemical Co.	Sodium oleyl methyltauride Alkylolamide alkyl aryl sulfonate Sodium oleyl methyltauride Alkylated polyamine Fatty amine complex Modified ethylene oxide condensation product Long chain alcohol sulfate Alkyl aryl sulfonate	Detergent Detergent Detergent Detergent Detergent Detergent Detergent	Liquid Liquid Liquid Liquid Liquid Liquid Powder	Anionic Cationic Anionic Nonionic Cationic Cationic Anionic Anionic	Textile scouring agent Textile scouring and dye leveling agent Textile leveling and scouring agent for wool Textile dyeing assistant Textile-wool scouring agent	
Wyesol 1D	Wye Industries	Fatty alkanolamide	Emulsifier	Liquid	100%	Cationic	Textile scouring and dye leveling
Xyromine Paste No. 33	Onyx Chemical Corp.	Mixture of sodium salts of sulfonated hydroxyalkyl amides derived from coconut fatty acids	Detergent Wetting	Paste	33%	Anionic	Oil soluble, dry cleaning, fuel oil additive
Xyromine Powder No. 20	Onyx Chemical Corp.	Same as above	Detergent Wetting	Powder	24%	Anionic	Textile, household and industrial detergent; powdered, burnishing compounds, metal cleaners, high foam, excellent lubricity
Zeal	Turco Products, Inc.	Compounded product	Germicide Detergent	Liquid Conc.	12.8% Cationic	550 PPM with a phenol coefficient of 20	Germicidal product for use in hard water up to 550 PPM with a phenol coefficient of 20
Zephiran Chloride	Winthrop Laboratories	Alkyl dimethyl benzyl ammonium chloride	Germicide	Liquid	12.8% Cationic	Retired benzalkonium chlorides for surgical and medical use in 0.1% aqueous tinctures and 12.8% aqueous	Retired benzalkonium chlorides for surgical and medical use in 0.1% aqueous tinctures and 12.8% aqueous

Firms Whose Products Are Listed

Aceto Chemical Co., 40-40 Lawrence St., Flushing 54, N. Y.
(Representative of Marchon Products, Ltd.)

Advance Solvents & Chemical Division of Carlisle Chemical Works, Inc., 500 Jersey Ave., New Brunswick, N. J.

Air Reduction Chemical Co., 150 E. 42nd St., New York 17, N. Y. (A division of Air Reduction Co.)

Alframine Corp., 72-76 Putman St., Paterson 4, N. J.

Allied Chemical Corp. (See National Aniline Division of)

Amalgamated Chemical Corp., Rorer & Ontario St., Philadelphia 34, Pa.

American Cholesterol Products, Inc., Amerchol Park, Edison, N. J.

American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y.

Antara Chemicals, a sales division of General Aniline & Film Corp., 435 Hudson St., New York 14, N. Y.

Apex Chemical Co., 200 South First St., Elizabethport 1, N. J.

Aquaneiss Department, 2005 Quitman St., Houston 26, Texas (A Dept. of Atlas Powder Co.)

Archer-Daniels-Midland Co., 700 Investors Bldg., Minneapolis 2, Minn.

Arkansas Co., Inc., 185 Foundry St., (P.O. Box 210) Newark 1, N. J.

Armour & Co., 1355 West 31st St., Chicago 9, Ill.

Arnold, Hoffman & Co., Inc., 55 Canal St., Providence 1, R. I. (A subsidiary of Imperial Chemical Industries, Ltd.)

Atlantic Refining Co., Inc., 260 S. Broad St., Phila. 1, Pa.

Atlas Powder Co., Wilmington 99, Del. (Canadian Manufacture at Brantford, Ontario, Canada.)

Baroid Division, National Lead Co., P. O. Box 1675, Houston 1, Texas

Belle Chemical Co., Inc., 534 Pearl St., Reading, Pa.

Borden Chemical Co., 103 Foster St., Peabody, Mass.
(Div. of the Borden Co.)

Bryton Chemical Co., 1270 Avenue of the Americas, New York 20, N. Y. (A subsidiary of the Continental Oil Co.)

Burkart-Schier Chemical Co., 1228 Chestnut St., Chattanooga 2, Tenn.

Carlisle Chemical Works, Inc., West St., Reading 15, O.

Central Soya Company, Inc. Chemurgy Division, 1825 N. Laramie Ave., Chicago, Ill.

Chemactants, Inc. (Div. of American Cholesterol, which see).

Chemical Developments of Canada, Ltd., 420 Lagachetiere St. W., Montreal 1, P.Q., Canada (Representatives in Canada of Antara Chem. Div. of General Aniline & Film Corp.)

Colgate-Palmolive Co., 300 Park Ave., New York 22, N. Y.

Ciba Co., Inc., Fair Lawn, N. J.

Commonwealth Color and Chemical Co., 3240 Grace Ave., New York 69, N. Y. Products handled by Nyanza Color & Chem. Co., which see.

Conant, G. H., Co., P. O. Box 41, North Cambridge 40, Mass.

Continental Chemical Co., 195 Twenty First Ave., Paterson, N. J.

Continental Oil Co., 1270 Avenue of the Americas, New York 20, N. Y.

Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, O.

Crown Zellerbach Corp., Camas, Wash.

Distillation Products Industries, 343 State St., Rochester 3, N.Y. (Division of Eastman Kodak Co.)

Dixie Co., 158 Central Ave., Rochelle Park, N. J.

Dolge, C. B., Co., Westport, Conn.

Dow Chemical Co., Midland, Mich.

Drew, E. F., & Co., 15 E. 26th St., New York 10, N. Y.

DuBois Chemicals, Inc., 1120 W. Front St., Cincinnati 3, O.

DuPont de Nemours, E. I., & Co., Inc., Wilmington 98, Del.

Essential Chemicals Co., 5906 No. Port Washington Rd., Milwaukee 17, Wis.

Fallek Products Co., 165 Broadway, New York 6, N.Y. (Agents for Deutsche Hydrierwerke G. m. b. H., Duesseldorf, Germany.)

Fiber Chemical Corp., P. O. Box 218, Matawan, N. J.

Fine Organics, Inc., 205 Main St., Lodi, N. J.

Finetex, Inc., 418 Falmouth Avenue, East Paterson, N. J.

Foremost Food & Chemical Co., El Dorado Division, P. O. Box 599, Oakland 4, Calif.

Geigy Chemical Corp., Saw Mill River Road, Ardsley, N. Y. (P. O. Box 430 Yonkers, N. Y.)

General Aniline & Film Corp. (See also Antara Chemicals).

General Mills, Inc., South Kensington Road, Kankakee, Ill.

Glyco Chemicals, 417 Fifth Ave., New York 16, N. Y.
(Div. of Chas. L. Huisking & Co., Inc.)

Goodrich Chemical Co., A Division of B. F. Goodrich Co., 3135 Euclid Ave., Cleveland 15, O.

Gray Chemical, Inc., Rowe Square, Gloucester, Mass.

Griffin Division, Nopco Chemical Co., 1141 South 14th St., Richmond, Calif.

Hall, C. P. Company of Illinois, 5245 W. 73rd St., Chicago 38, Ill.

Helene Curtis Industries, Inc., 4401 W. North Ave., Chicago 39, Ill.

Hodag Chemical Corp., 7247 N. Central Park, Chicago 45, Ill.

Huisking & Co., Inc., Chas. L. (See Glyco Chemicals).

Imperial Chemical Industries (N.Y.), Ltd., 488 Madison Ave., New York 22, N. Y. (See Arnold, Hoffman & Co.)

Intex Chemical Corp., 167 Main St., Lodi, N. J.

Jacques Wolf & Co. (See Wolf, Jacques & Co.)

Jefferson Chemical Co., Inc., 1121 Walker Ave., Houston 2, Texas

Kessler Chemical Co., State Rd. and Cottman Ave., Phila. 35, Pa.

King, O. L., & Co., 640 Gilman St., Berkeley 10, Calif.

Laurel Soap Mfg. Co., Inc., Tioga, Thompson & Almond St., Philadelphia 34, Pa.

Leyda Oil and Chemical Co., 12603 Cerise Ave., Hawthorne, Calif.

Maher Color & Chemical Co., 1700 North Elston Ave., Chicago 22, Ill.

Marchon Products, Ltd., England. See Aceto Chemical Co., Inc. U.S.A. representative.

Maywood Chemical Works, 100 W. Hunter Ave., Maywood, N. J. (A Div. of Stepan Chemical Co.)

Metro-Atlantic, Inc., Centredale 11, R. I.

Michel, M. and Co., 90 Broad St., New York 4, N. Y.

Miranol Chemical Co., 277 Coit St., Irvington 11, N. J.

Mona Industries, Inc., 65 E. 23rd St., Paterson 4, N. J.

Monsanto Chemical Co., 800 North Lindberg Blvd., St. Louis 66, Mo.

Moretex Chemical Products, Inc., 314 W. Henry St., Spartanburg, S. C.

Nalco Chemical Co., 6216 W. 66th Place, Chicago 38, Ill.

National Aniline Division of Allied Chemical Corp., 40 Recor St., New York 6, N. Y.

Ninol Laboratories, Inc. (A division of Stepan Chemical Co.)

Nopco Chemical Co., 60 Park Place, Newark 1, N. J. (See also under Griffin Chemical Co. Div. & Jacques Wolf Co. Div.)

Onyx Chemical Corp., Warren & Morris St., Jersey City 2, N. J.

Northwestern Chemical Co., 120 N. Aurora St., West Chicago, Ill.

Oronite Chemical Co., 200 Bush St., San Francisco 20, Calif.

Peck's Products Co., 610 E. Clarence Ave., St. Louis 15, Mo.

Pennsylvania Refining Co., Butler, Pa.

Phoenix Oil Co., 9505 Cassius Ave., Cleveland 5, Ohio

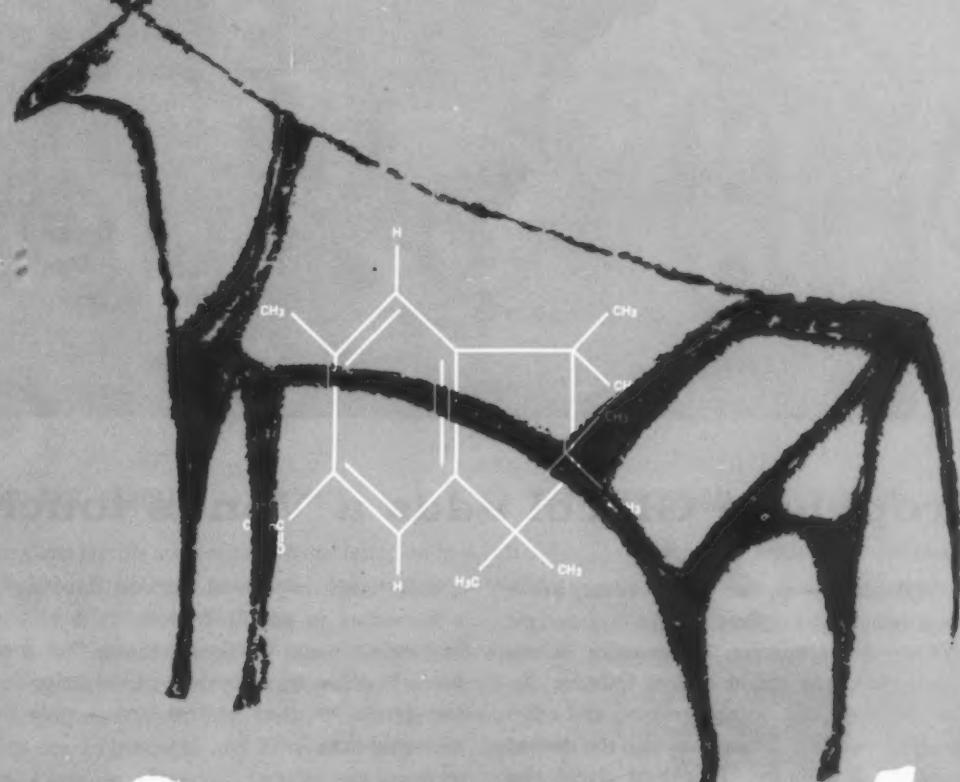
Pilot Chemical Co. of California, P. O. Box 22130, Los Angeles 22, Calif.

Procter & Gamble Co., P & G Bldg., 301 East 6th St., Cincinnati 2, Ohio

(Turn to Page 211)

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Because of its low toxicity, Propylene Glycol, U.S.P. is your most versatile polyol for use as

a color emulsion solvent in food flavoring and a humectant in packaged foods. It is also used in cork seals and cellulose coatings that contact food. In tobaccos, propylene glycol helps maintain proper moisture content over a wide range of humidities.

Industrial grade propylene glycol and dipropylene glycol are widely used as intermediates for polyester and alkyd resins, as a basic component for hydraulic fluids, as softeners and plasticizers, as solvents in steam-set printing inks and in solvent-extraction processes. Jefferson's technical service people can be most helpful in your special application problems.

SOAP and CHEMICAL SPECIALTIES

PROPYLENE GLYCOL

Industrial and
U. S. P. Grades

PROPYLENE GLYCOL

SPECIFICATIONS

INDUSTRIAL GRADE:

Specific gravity, 20/20°C.....	1.0375 min. 1.0390 max.
Acidity as acetic, wt. %.....	0.005 max.
Water, wt. %.....	0.2 max.
Color, Pt-Co scale.....	10 max.
Ash, wt. %.....	0.005 max.
Boiling range, ASTM, °C.....	185-189

U.S.P. GRADE:

(Same as specifications for Industrial Grade with the following exceptions:)	
Boiling range, ASTM, °C.....	186-189
Acidity as acetic, wt. %.....	0.003 max.
Chlorides as Cl, wt. %.....	0.0001 max.
Sulfate N.....	None
Arsenic as As ₂ O ₃ , ppm.....	1 max.

SELECT PROPERTIES

Boiling point, 760 mm.....	187.4°C.
Flash point (open cup).....	225°F.
Melting point.....	<-60°C.
Molecular weight.....	79.09
Specific gravity, 20/20°C.....	1.0381
Viscosity, 20°C.....	60 centipoise
Weight, 20°C.....	8.62 lbs./gal.

Select Properties same as for Industrial Grade
Propylene Glycol

DIPROPYLENE GLYCOL

SPECIFICATIONS

Specific gravity, 20/20°C.....	1.020 min. 1.025 max.
Acidity as acetic, wt. %.....	0.01 max.
Water, wt. %.....	0.1 max.
Color, Pt-Co scale.....	15 max.
Boiling range, ASTM, °C.....	222-238

SELECT PROPERTIES

Boiling point, 760mm.....	231.8°C.
Flash point (open cup).....	280°F.
Viscosity, 20°C.....	107 centipoise
Weight, 20°C.....	8.5 lbs./gal.
Molecular weight.....	134.17
Specific gravity, 20/20°C.....	1.0252
Melting point.....	<-60°C.

SHIPPING AND HANDLING

Propylene glycols are available from Jefferson in 4,000-, 6,000-, 8,000-, 10,000-gal. tank cars, tank wagons in most areas, and 55-gal. resin-lined drums.

The handling and storage of these glycols is in most cases a straightforward operation. They present no hazard of explosion, polymerization, fire, health, or other industrial risk. They are hygroscopic and have extremely low vapor pressures. There are, however, certain uses requiring extra protection against contamination during handling and storage . . . explained in detail in our technical literature.

TECHNICAL INFORMATION

Request these new, up-to-date Technical Brochures on Industrial Grade and U.S.P. Grade Propylene Glycols for detailed chemical and physical data . . . Jefferson Chemical Company, Inc., 1121 Walker Avenue, P. O. Box 303, Houston 1, Texas.



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RUST REMOVAL—Outstanding caustic rust removal compounds are possible with Pfizer Gluconates. Besides dissolving rust efficiently, the presence of gluconates will retard after-rust and prolong the life

of the bath. Also, a small amount of gluconate added to standard alkaline cleaning compounds helps in the removal of light rust films.

ALUMINUM ETCHING—Pfizer Gluconates in aluminum etching compounds prevent the formation of hard, adherent scale. Efficient and economical, too, because you use very little gluconate in the compounds, yet assure an even, uniform etch.

STRIPPING PAINT FROM STEEL—Pfizer Gluconates improve the efficiency of caustic paint-stripping compounds. They increase the rate of paint film removal and permit free rinsing of the paint-stripped metal. Pfizer Gluconates eliminate the usual after-film of iron oxide.

Pfizer Gluconates have a proven record of stability in caustic compounds, both in storage and in use. Be sure your caustic formulation line is complete. Write to Pfizer for technical data and use-level information on sodium gluconate and gluconic acid.

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ULTRA SURFACE ACTIVE AGENTS

a
convenient
reference
chart
to guide you
in the selection of
ultra
surface
active
agents

ULTRA SURFACE ACTIVE AGENTS AND THEIR APPLICATIONS



This ready-reference chart offers a bird's-eye view of Ultra's full-range line of surface active agents. It provides a concise frame of reference for the detailed application information available in Ultra's technical literature. The products listed in this table represent one of the most complete lines of surface active agents available to the chemical and allied industries. They find application in such diverse fields as the processing of metals, textiles, paper and leather, and in

PRODUCT	FORM	ACTIVE INGREDIENT	% ACTIVE	APPLICATIONS
ALKYL ARYL SULFONATES	DRY			
Sulframin® AB40 Flakes	flake	Sodium dodecylbenzene sulfonate	40	For dry
Sulframin AB40 Powder	powder	Sodium dodecylbenzene sulfonate	40	For dry
Sulframin AB40 Beads	bead	Sodium dodecylbenzene sulfonate	39	Spray
Sulframin AB40Y	flake	Modified alkyl aryl sulfonate	40	Modifi
Sulframin AB40C	flake	Sulframin AB40 plus CMC	40	Contain
Sulframin AB Concentrate Flakes	flake	Sodium dodecylbenzene sulfonate	85	High a
Sulframin AB Concentrate Powder	powder	Sodium dodecylbenzene sulfonate	85	High a
Sulframin NAB	powder	Sodium nonylbenzene sulfonate	80	Low m
Sulframin ABS	powder	Medium molecular weight alkyl aryl sulfonate	83	For co
ALKYL ARYL SULFONATES	LIQUID • SLURRY • GEL			
Sulframin E	liquid	Alkyl aryl sulfonate plus nonionic detergent	25	Modifi
Sulframin E50	gel	Alkyl aryl sulfonate plus nonionic detergent	50	Conce
Sulframin KE	liquid	Dodecylbenzene sulfonate	25	For liq
Sulframin KE50	gel	Dodecylbenzene sulfonate	50	Conce
Sulframin L	gel	Alkyl aryl sulfonate plus amine condensates	20	Modifi
Sulframin L Concentrate	gel	Alkyl aryl sulfonate plus amine condensates	45	Conce
Sulframin ABS Liquid	liquid	Medium molecular weight alkyl aryl sulfonate	30	High v
Sulframin AB Slurry	slurry	Sodium dodecylbenzene sulfonate	45	Paste
Sulframin Sulfonic Acid	liquid	Dodecylbenzene sulfonic acid	87	For in
BUILT DETERGENTS				
Sulframin HD Beads	bead	Built alkyl aryl sulfonate	—	Heavy
Sulframin LD Beads	bead	Lightly built alkyl aryl sulfonate	—	For dis
Neopone LO® Beads	bead	Built nonionic	—	A low t
NONIONICS				
Neopone® NP10	liquid	Nonylphenol ethylene oxide condensate	100	For liq
Neopone G-3	liquid	Ethoxylated oleoyl ethanolamide	100	Genera
AMINE CONDENSATES				
Ultrapole® S	liquid	2:1 coconut diethanolamide	99	Deterg
Ultrapole SO	liquid	Modified coconut diethanolamide	100	High v
Ultrapole DL	liquid	Modified diethanolamide	97	Oil sol
Ultrapole LSCM	liquid	Modified coconut diethanolamide	100	High a
SUPERAMIDES				
Ultrapole LDA 9005	waxy solid	1:1 lauroyl diethanolamide	92	Foam
Ultrapole LDA 9025	waxy solid	1:1 lauroyl diethanolamide	68	Foam
Ultrapole L	waxy solid	Lauroyl isopropanolamide	96	Foam
HYDROTROPS				
Sodium Toluene Sulfonate	powder	As named	95	
Sodium Toluene Sulfonate	liquid	As named	40	
Sodium Xylene Sulfonate	powder	As named	95	
Sodium Xylene Sulfonate	liquid	As named	40	
SOFTENERS				
Ultramin® SS25	gel	Stearic acid alkanolamide	25	Textile
Ultramin SS	waxy solid	Stearic acid alkanolamide	100	Concen

R APPLICATIONS

the manufacture of rubber, cosmetics, concrete, pharmaceuticals and plastics. These products comprise a full line of detergent components for the manufacturer of cleaning compounds. Ultra's modern plants are located in the heart of major national manufacturing regions in order to provide the utmost in delivery and service. Detailed information on products and their applications is available on request.

APPLICATIONS

APPLICATIONS	% Fatty Acid (as lauric acid)	% Sodium Sulfate	% Free amine (as DEA)	% Moisture	Specific gravity	pH (1% in distilled H ₂ O)	Surface tension 0.1% (cps.)	Draves 0.1% (in seconds)	Ross-Miles 0.1% (in ml.)	
For dry blended compounds • dishwashing • industrial and institutional cleaners	—	58	—	1.0	0.48	7.5	30	12	375	
For dry blended compounds • dishwashing • industrial and institutional cleaners	—	58	—	1.0	0.68	7.5	30	12	375	
Spray-dried for high bulk • contains foam stabilizer • for cleaning compounds • bubble bath	—	51	—	2.0	0.2	7.0	29	10	360	
Modified for rapid solution • for dry blended cleaning compounds	—	53	—	—	—	—	30	12	370	
Contains CMC • for compounding laundry and dishwashing detergents	—	55	—	1.5	0.5	8.5	30	12	370	
High active • for low salt or high builder content products	—	13	—	1.5	0.35	7.5	29	5	360	
High active • for low salt or high builder content products	—	13	—	1.5	0.53	7.5	29	5	360	
Low molecular weight for rapid cold water solubility • air-entrainment	—	16	—	1.5	0.50	7.5	30	24	290	
For cold water solubility • cleaning compounds • air-entrainment	—	15	—	1.5	0.40	7.5	29	5	370	
Modified with nonionic for dense, creamy foams • bubble bath	—	3	—	72	1.05	6.7	31	30	250	
Concentrated form of Sulframin E	—	6	—	42	0.56	6.7	31	15	250	
For liquid cleaners • textile processing • bubble liquids	—	5	—	70	1.05	7.0	30	50	300	
Concentrated form of Sulframin KE	—	10	—	40	0.56	7.0	50	15	300	
Modified for textile use • efficient detergent for continuous boil-off and dye bath	—	1.5	—	77	0.51	7.5	28	33	175	
Concentrated form of Sulframin L	—	5	—	50	0.53	7.5	—	16	175	
High water solubility • compounding liquid detergents	—	—	—	—	1.10	7.0	30	30	240	
Paste form • for building liquid and dry products	—	7	—	47	1.08	7.5	—	—	—	
For in-plant neutralization	—	—	—	3.5	1.10	—	—	—	—	
Heavy-duty detergent • high foamer • for top loading laundry machines	—	—	—	—	0.30	10.5	33	20	315	
For dishwashing and general cleaning	—	—	—	—	—	0.26	10.5	29	24	300
A low foam laundry detergent	—	—	—	—	0.30	10.5	35	150	30	
For liquid compounds • laundry detergents • textile processing • hard surface cleaners	—	—	—	—	1.05	7.2	33.5	7	140	
General purpose emulsifier	0.5	—	—	—	0.90	—	—	—	—	
Detergent and viscosity builder • for liquid cleaners • shampoos • textile processing	5	—	25	—	1.00	9.2	30	30	200	
High viscosity builder for liquid floor cleaners	16	—	—	—	1.00	8.8	—	—	—	
Oil soluble • dry cleaning charge soaps • w/o emulsions	5	—	11	<2	.99	9.0	—	—	—	
High alkali tolerance for textile processing	36	—	20	—	1.00	7.5	—	—	—	
Foam stabilizer for shampoos and bubble baths	—	—	5	—	0.96	9.2	—	—	—	
Foam stabilizer for light-duty liquid detergents	—	—	25	—	1.00	9.2	—	—	—	
Foam stabilizer for detergents and cleaning compounds	<2	—	<2	—	0.90	9.1	—	—	—	
Coupling agents and solubilizers for liquid laundry and dishwashing detergents	—	2.0	—	2	0.40	8.0	—	—	—	
• anti-blocking agents • solvents for organic reactions	—	0.8	—	56	1.20	8.0	—	—	—	
Textile softener • cosmetic cream ingredient	—	2.0	—	2	0.50	8.0	—	—	—	
Concentrated form of Ultramin SS25	—	0.8	—	56	1.20	8.0	—	—	—	

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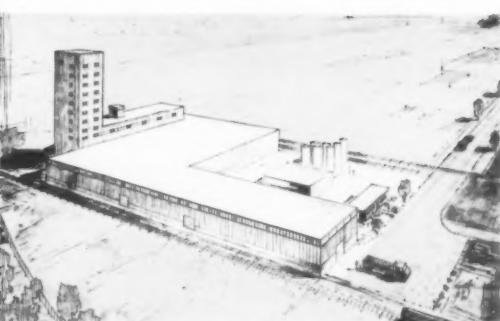
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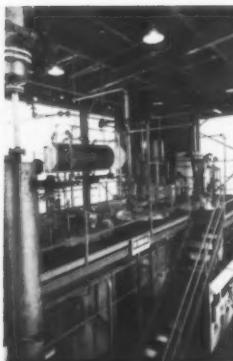
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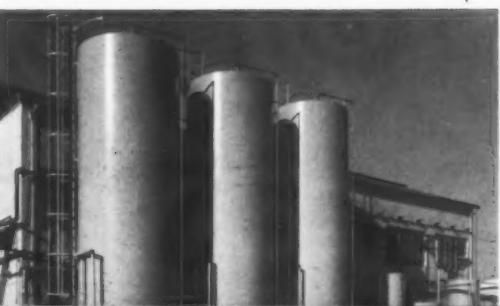


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1. *Across-the-river view of Ultra's plant and laboratories at Paterson, N.J.*

2. *Giant bins hold up to 600,000 lbs. of inorganic detergent raw materials.*

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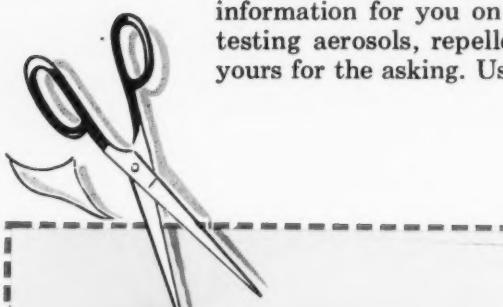
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IN a recent paper on "Floor Finishes of Tomorrow" (1), Dr. Vernon Steinle painted this picture: "In the not too distant future, I see the synthesis of a single molecular structure in the form of an emulsion polymer that will produce a higher gloss than the present floor waxes, which can be rebuffed to its initial gloss, which is absolutely impervious to spotting by water or soap and water, but which will be easily removed by the addition of a simple common chemical to the scrub water." We agree, that these performance characteristics can be

cent formulations where the polymer portion may run as high as 90%. Along with this increasing polymer content in floor polishes, there has also been a significant improvement in performance.

Specific properties which have gained by the change include: Gloss — improvement in both reflected gloss and depth of gloss; durability — tougher, high molecular weight polymers are longer wearing; water resistance — lower soap contents allow better balance of water resistance and soap removability; non-slip — partial replacement of waxes with non-slip-

Future of Polymers in Polish

By Richard H. Cahill and Lloyd H. Perry*

UBS Chemical Co.
Division of Staley Manufacturing Co.
Cambridge, Mass.

realized in the near future and, further, that polymer emulsions will play a very important role. In this presentation we will describe some interesting accomplishments in polymer chemistry, pointing out their possible application in floor polishes.

Considerable attention is also being given to the improvement of other polish components such as waxes and alkali soluble resins and we expect that new developments in these areas will contribute much to the achievement of the goals cited in Dr. Steinle's paper.

The transition from present day formulations to the super-performance products of the future will be one of gradual improvement rather than the abrupt change caused by the introduction of polymer dispersions in 1953. (2) Since then, the use of polymers has changed from the "additive" stage when the polymer made up 10-25% of the polish, to some re-

ping polymers; scuffing — harder surface; cost — lower cost, stable price structure.

So much for the past. Now let's look at the future. The construction of polymer molecules is rapidly proceeding from an art to a science. Such factors as molecular weight, orientation, branching, crosslinking and copolymerization can be surprisingly well controlled to give predictable effects on end properties. Add to this improved polymer technology the increasing number of new monomers that are being introduced and it becomes obvious that the polymer chemist has at his disposal an impressive collection of tools with which to accomplish his objectives.

A polymer latex is a dispersion of discrete particles. For floor polish applications, particles are usually less than 0.05 microns in diameter. When dried, these particles pack on top of one another much as would soft rubber balls. Around these particles are voids,

* Paper presented at 47th annual meeting, Chemical Specialties Manufacturers Association, Hollywood, Fla., Dec. 6, 1960.

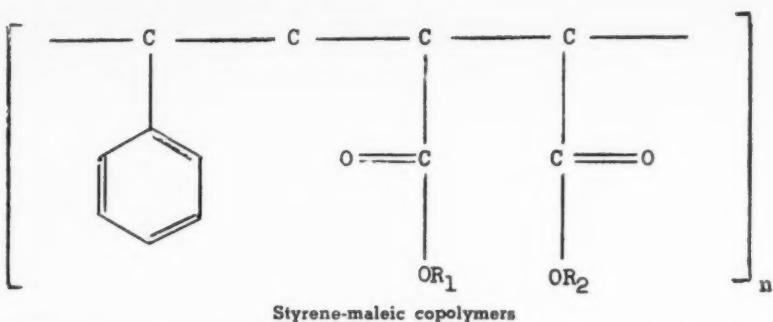
the size of which is determined by their softness. In a film of hard, perfectly spherical particles it has been calculated that these voids amount to about 25.9% of the volume. In actual practice there is always some distortion of the polymer particles and hence a lower void space than would exist for perfect spheres. In most polymer finishes, this void space is filled with various combinations of alkali soluble resins or waxes. Significant improvements on these waxes have already been made with the introduction of lighter colored materials. Similar progress is also evident in the field of alkali soluble resins. For example, there are currently available light colored styrene-maleic copolymers which also are reported to increase durability of polishes. This resin system offers considerable opportunity in terms of chemical modifications of the basic molecule. See formula above.

First, this particular polymerization is one of the few vinyl systems which proceeds smoothly to provide alternating monomer units. Second, substitution of various alkyl groups in place of R_1 or R_2 (or both) has great influence on water sensitivity, flexibility, durability and compatibility. Even further modifications are possible by using other vinyl monomers such as acrylates in place of — or copolymerized with — the styrene portion.

We shall now examine in more detail the important areas of gloss, durability and water properties and indicate how improved polymers will contribute to their enhancement.

Gloss

The first property one looks for in a floor polish is high gloss. This includes both reflected gloss, which can be measured instrumentally, and "depth of gloss," which can be judged only by appearance. One of the principal reasons why polymer latices now make satisfactory polish ingredients is the



extreme smallness of their particles. How to combine small particle size with desirable chemical properties and stability has been the major problem facing the polymer chemist. As the particle size decreases, the total surface area per given volume of polymer increases and more surfactant is required for stabilization. Merely reducing the particle size of the polymer systems normally used in paints or paper coatings is impractical, since this requires such a large increase in surfactant that the polymer becomes worthless. For example, styrene-butadiene latices have an average particle size of 0.2 microns as compared with a size of 0.02 for a typical floor polish polystyrene latex. In the latter case the polymer chemist must stabilize 1000 times as many particles, having 10 times the total surface area of the styrene-butadiene latex.

Initially, the polymer chemist answered the problem of stabilizing these small particles by the use of resins such as shellac. Shellac is not normally considered a surfactant but it does act as a good stabilizer in polymer systems. Furthermore, its presence is completely acceptable in floor polishes, since many of the formulations contain shellac. More recently, the polymer chemist has learned how to achieve the same results by incorporating stabilizing groups in the polymer chain itself. This approach has been used in many of the newer acrylate or styrene-acrylate polymers and will certainly play an important part in their future improvement.

All other factors being equal, the ultimate in film uniformity and gloss can be achieved by reducing the dispersed particle size to the point where it approaches that of a solution. This approach has yielded only limited success for several reasons. Water soluble or even alkali soluble polymers have, at best, only fair water resistance and it is extremely difficult to get adequately high molecular weight for good film toughness without obtaining solutions of excessively high viscosity. Both the viscosity and the water sensitivity problems show signs of being overcome. For example, a water soluble melamine-acrylic copolymer, currently on the market, has a viscosity of only 10,000 cps. at 50% solids. This polymer can be dried to a tough, water resistant film using only a moderate baking cycle. Certainly, it will not be long before this drying can be accomplished at room temperature, thereby making these polymers acceptable as additives or even as the principal ingredient in floor polishes.

The gloss of a floor polish is also dependent on the refractive index of the film according to Fresnel's equation:

$$\text{Reflectance} = \left(\frac{n_2 - 1}{n_2 + 1} \right)^2$$

In this equation n_2 represents the refractive index. The higher the refractive index, the greater will be the reflectance of the film. In other words, everything else being equal, polymers with the higher

refractive index will provide the better gloss.

Table I lists the refractive indices of several components of floor polishes. Most of the natural materials, such as waxes and resins, that have been found most useful in polishes have moderately high refractive indices. Polystyrene also has a high value. Acrylate esters, on the other hand, are low. This probably explains the difficulty in making acceptable acrylic type polishes at low solids. Several new monomers, are available, at least in experimental quantities, which have even higher refractive indices than styrene. Here is a way to upgrade gloss that thus far has received very little attention.

Finally, before leaving gloss improvement, it should be noted that compatibility of the various polish ingredients is extremely important. The polymer chemist can incorporate into the polymer molecule nitrogens, halogens, inorganic metals, carboxyls and, in brief, practically any element or group that will help to improve the blending of ingredients.

Durability

Durability can be defined most simply as the sum total of those properties which determine the life span of a floor polish. This would include gloss retention, ability to withstand the wear of traffic, and water resistance. Present-day formulations do not have

Table I. Refractive Indices of Floor Polish Components

Material	Refractive index,
	25°C (100% solids)
Polystyrene	1.5900
Styrene-Maleic Resin	1.5780
Fisher-Tropsch Wax	1.5660
Microcrystalline Wax	1.5650
Carnauba Wax	1.5610
Terpene-Phenolic Resin	1.5410
Shellac	1.5400
Polyethyl Acrylate	1.4680

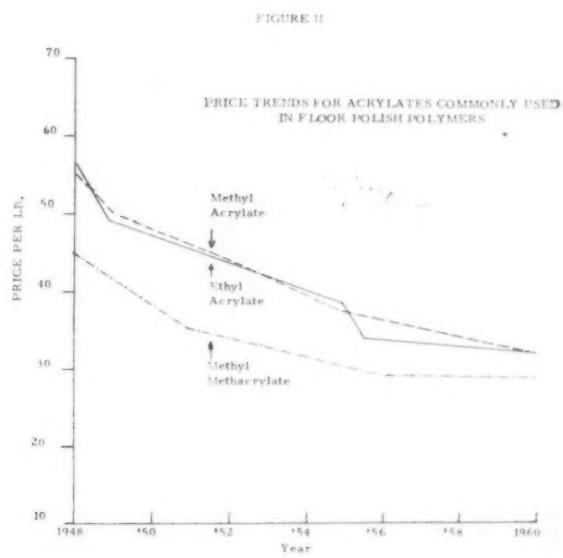
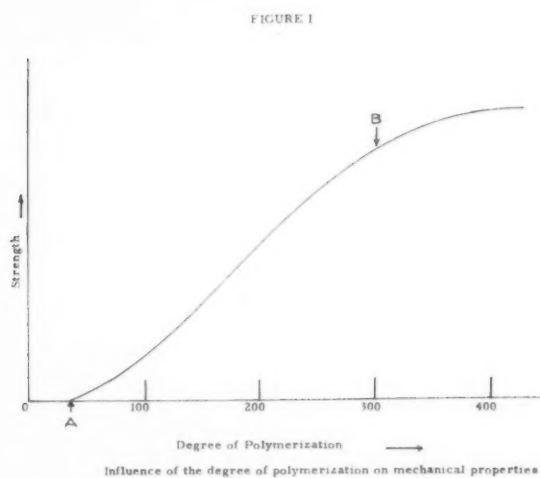
sufficiently long term durability for many uses. This problem is currently being handled either by the use of buffable polishes or through an easy-on easy-off approach. When the ultimate in durability is attained we would expect to see a sharp decline in this type of floor maintenance. Polymers certainly have much to offer toward the attainment of this goal.

Examining the possibility of extending the useful life of polymer based finishes, we find that molecular weight is frequently mentioned. Molecular weight and mechanical strength are related: mechanical strength increases with increasing molecular weight. However, this increase is not linear as shown in Figure I, wherein degree of polymerization (average number of monomer units in a polymer chain) is plotted against mechanical strength. Thus, efforts to

increase molecular weight to degrees of polymerization above 400 will not be rewarded with a corresponding increase in physical properties. Most of today's floor polish polymers are considered to have degrees of polymerization in excess of 500, and are in this zone of diminishing return.

Another convincing demonstration of the futility of pursuing higher molecular weight to the exclusion of other factors is the performance of several natural products of relatively low molecular weights. Specifically, shellac and carnauba wax come to mind, both of which have molecular weights of under 500. Yet, shellac will outlast in terms of toughness similar resins of much higher molecular weight, just as carnauba wax will outwear many synthetic waxes such as polyethylenes with molecular weights as high as 5000.

Such comparisons indicate that the chemical construction of the molecule is of primary consideration in attempting to build a super-durable polymer. The rather simple chemical structure of molecules like polystyrene and polyethylene does not supply the possibilities for interaction between chemical groups as do the more complicated molecules of shellac and carnauba. Increased bond strength through reactivity of polar



and hydrogen bonding groups makes up in great measure for the much lower molecular weights of these natural products.

The emergence of new monomers with attached side groups of potential chemical activity leads to improved intra-molecular cohesion which is a powerful means of providing added life for polymer floor finishes. Included among potential monomers are for example: Acids — acrylic, itaconic, etc.; alcohols — glycol esters of acrylic acids; ethers — polyethylene oxide esters of acrylic acids; amines —vinyl pyridine or amine containing esters of acrylic acid; halogens —halogenated styrenes or acrylates.

All of these monomers have, in addition to the chemically active portion, a vinyl group which allows them to be polymerized in normal fashion either as homopolymers or copolymers. The polymer chemist is already using this type of monomer as a means of incorporating relatively small amounts of special groups into a polymer chain which is based on styrene or simple acrylate esters. This work will certainly result in considerable improvement in floor polish durability during the next year or two.

Economics

At this time many of the newer monomers sell at high prices which may run up to as much as two dollars per pound. Certainly, all are more expensive than styrene and simple acrylate or methacrylate esters. The latter have not always been low priced chemicals. Figure 2 shows the price trend of three acrylate esters during the past twelve years. After adding polymerization costs, not one of these would have made much economic sense as a major floor polish ingredient in 1948. Even styrene, which is currently selling for 12 cents, cost over 21 cents nine years ago and in 1940 was just moving out of the pilot plant. Doubtless, the same kind of price reductions will be made for these newer monomers just as soon as a demand

starts to appear. The floor polish industry could well be the starting point for their use. In any event these monomers should not be disregarded just because of high price.

A second approach that provides even tougher and harder polymer films is based on cross-linking of the polymer chains. Styrene or an acrylate ester, such as methyl acrylate, polymerizes to form relatively simple polymer chains. This happens because each of these monomers has only one active vinyl group. If a second vinyl group is incorporated into the monomer, then each monomer unit doubles its possibility of reaction and, in addition to forming the simple polymer chains, will bind these chains together in a lattice type structure. This type of molecular structure can be achieved by using such monomers as divinyl benzene or allyl acrylate, each of which contains two vinyl groups.

As one would suspect, these highly cross-linked polymers are hard and tough. Unfortunately, however, several other properties that are necessary in floor polishes are lost. These include leveling, adhesion, removability and compatibility. One possible way of circumventing these problems is

control of the extent of cross-linking. This approach is being utilized and the amount of the di-functional monomer in the polymer is limited to less than 1%. This small amount does improve the hardness, without providing enough cross-linking to affect seriously the other properties.

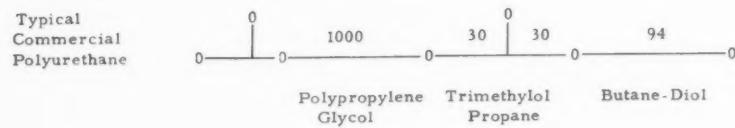
There is another and much better method of taking advantage of cross-linking in polymer films. This consists of preparing a simple polymer chain which contains reactive groups spaced at intervals along the chain. After the film has been formed these reactive groups are used to cross-link the polymer chain. By delaying the cross-linking until this point, several of the objections, such as impaired adhesion, levelling and compatibility, are eliminated or at least minimized.

One outstanding example of this approach is the polyurethanes which have recently found several important applications as surface coatings. Urethanes are polymerized by the addition of an active hydrogen containing molecule to an isocyanate, rather than by a vinyl type mechanism, but the general principal of chain formation is the same. (Table II).

(Turn to Page 125)

TABLE II

POLYURETHANE



0 : Toluene Diisocyanate

Inhibited Antifreezes for Aluminum

Testing of inhibited antifreeze solutions for use in aluminum automobile engines

By H. Lee Craig, Jr. and Patrick H. Woods*,

Metallurgical Research Laboratories
Reynolds Metals Co.
Richmond, Va.

MY company has been very active in promoting the use of aluminum in automobiles. As a consequence of a large scale cooperative program in metallurgy and allied fields, this year several of the leading American automotive manufacturers have introduced models with water cooled aluminum engines.

Early in the program, we were asked the question: "Are there available suitable antifreeze solutions for use with a water cooled aluminum engine?" One of the most important considerations was the fact that during the early period of introduction it would be impossible to restrict the engine to all-aluminum components. Instead of this favorable case, the engine would have, for example, cast iron inserts, a soldered brass radiator, and other nonaluminum parts. Another consideration was the effect on corrosion resistance of the two major alloying elements in casting alloys; namely, silicon and copper.

In our earlier work (1) this latter subject has been discussed, as well as the results of certain laboratory tests with both proprietary antifreeze solutions and with mixtures of inhibitors and ethylene glycol solutions. Briefly, it was shown that silicon additions do

not affect the corrosion resistance of cast aluminum in either the hypoeutectic, eutectic or hypereutectic alloys. Moreover, it was demonstrated that an optimum copper addition in the neighborhood of one to two per cent, reduced the corrosion of aluminum when it was galvanically coupled to copper or to cast iron. Some "inhibitors" were found to accelerate corrosion, in laboratory tests, and some commercial antifreezes were found to be inadequate in the inhibition of aluminum, although they were generally satisfactory for other metals. (2)

As this work progressed, our laboratory was approached by the major antifreeze manufacturers, revealing their plans, in some cases, to market antifreeze solutions tailored especially to protect aluminum. Without exception, samples of the new formulations, mostly still under experiment in their own laboratories, were offered for our tests. This paper presents the results obtained to date on the corrosion behavior of aluminum in both laboratory work and a modest field test carried out in the cars of laboratory personnel.

Need for Inhibition

Comparison with cast iron: The fact that cast iron is rapidly corroded by the waters generally used in engine cooling systems is all too familiar. Rust forms upon

contact with water and this process continues until the metal is eventually consumed. A typical symptom of rust formation is overheating, due to a retarding of the coolant flow by the bulky precipitate. Perforation is not too often encountered, due to the massive sections used in the cast iron engine.

In spite of these drawbacks, cast iron has proved to be an entirely satisfactory material from the corrosion standpoint when the proper inhibitors or inhibited antifreeze formulations are added to the cooling system water.

Aluminum, due to its highly protective oxide film, exhibits corrosion resistance superior to that of cast iron in aqueous solutions of ethylene glycol. Figure 1 demonstrates this fact. The results are from a laboratory test similar to the ASTM Glassware Corrosion Test. Details are found in Reference 1. Note the difference in scale: the corrosion rate of the cast iron is about 10 to 20 times that of the aluminum. The two effects studied showed first that aeration caused a significant increase in the corrosion of iron but did not affect the aluminum. Secondly, galvanic coupling to copper did not greatly alter the corrosion rate in either case. The minor nature of these effects is probably due to the fact that oxygen is not too soluble at the temperature of the solution,

*Presented at the 47th annual meeting of the Chemical Specialties Manufacturers Association, Hollywood Beach Hotel, Hollywood, Fla., Dec. 7, 1960.

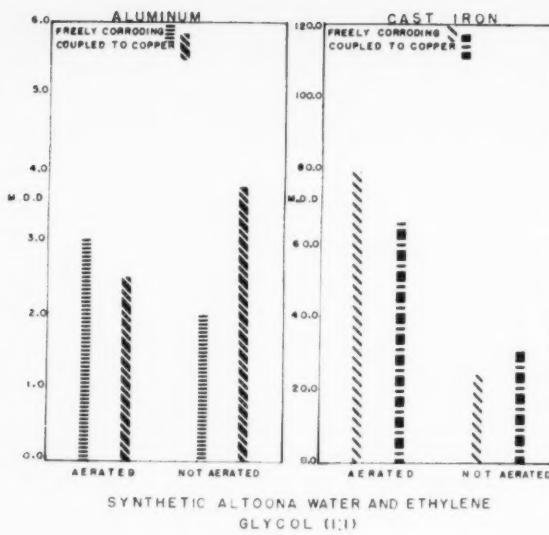


Figure 1

160°F, plus the fact that the samples are continuously agitated, retarding the polarization of the cathode areas.

Uniform corrosion was found. That is, no localized attack, either pitting or intergranular in nature, was observed in this test. The corrosion increases linearly with time, so that a rate figure, milligrams weight loss per square decimeter per day (M.D.D.) is meaningful. Consequently a buildup of corrosion product in the solution is expected, and eventually the cooling system in an aluminum engine could become clogged in the same fashion as the cast iron engine.

In this same test, it has been possible to reduce the corrosion rates of both aluminum and cast iron to negligible values using a proprietary antifreeze formulation in place of the ethylene glycol. It has been amply demonstrated that laboratory tests for the effectiveness of corrosion inhibitors are only reliable for screening purposes and do not foretell the behavior in actual service. (3)

Pitting attack: Pitting is the most characteristic form of corrosion of aluminum and one of the most difficult to assess, particularly in laboratory tests. The results of a one-year exposure to synthetic Altoona water, shown in Figure 2,

reveal that three alloys responded differently. This is due to the fact that pitting is random in nature; with small samples, weight losses are erratic. The major effect studied was the dilution of the corrosive water by ethylene glycol, which was effective in reducing the weight loss. It was not possible to measure pit depths on these particular specimens. Cast iron corroded to a much greater degree than aluminum, as shown by the large weight losses.

In a companion test, the corrosion attack was nearly completely stifled by the addition of 0.5% of an inhibitor, which was selected for its effectiveness on aluminum from several that were tested. The additional effect of the presence of cast iron galvanically coupled to the samples increased the corrosion. (See Figure 3.) The cast iron again corroded severely and was not as easily inhibited against attack.

Alloy C, a hypereutectic aluminum-silicon alloy with fifteen per cent silicon and one per cent copper corroded more than alloy D, the same alloy but with five per cent copper. This is one more indication that the addition of copper to aluminum reduces corrosion when galvanically coupled to copper or cast iron.

Several aluminum alloys

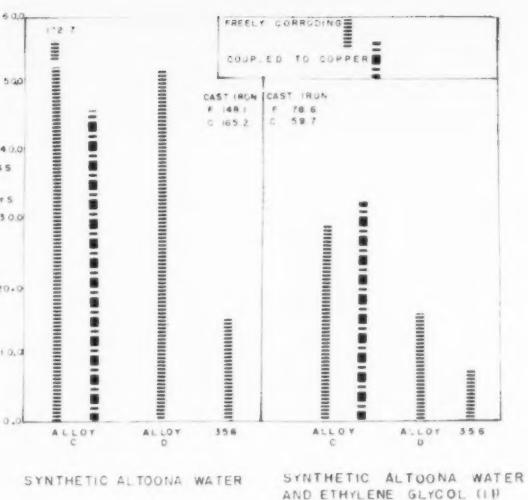


Figure 2

were exposed to a laboratory test designed to facilitate the development of pitting attack. The samples were two-inch diameter discs, 3-16" thick, with either the "as cast" surface or a machined surface exposed to the corrosive environment.

The nominal alloying elements are:

	Si	Cu	Mg
355	5.0	1.3	0.5
356	7.0	—	0.25
360	9.0	—	0.25
Alloy C	15.0	1.0	—
D	15.0	5.0	—
F	15.0	3.0	—

All values in per cent; the remainder is aluminum. Iron was the only major impurity, ranging from one tenth to eight tenths per cent in the various alloys.

The duration of the test was 30 days, with constant stirring at 230 rpm, as in the other laboratory tests. After exposure the samples were cleaned and pit depths measured with a dial gauge micrometer.

The major variable with respect to weight loss was temperature; note the difference in scales between Figure 4 and Figure 5 which is a factor of ten. However, the major effect with respect to pitting attack was the nature of the surface. With the exception of one alloy, alloy F, none of the "as cast" specimens pitted, whereas

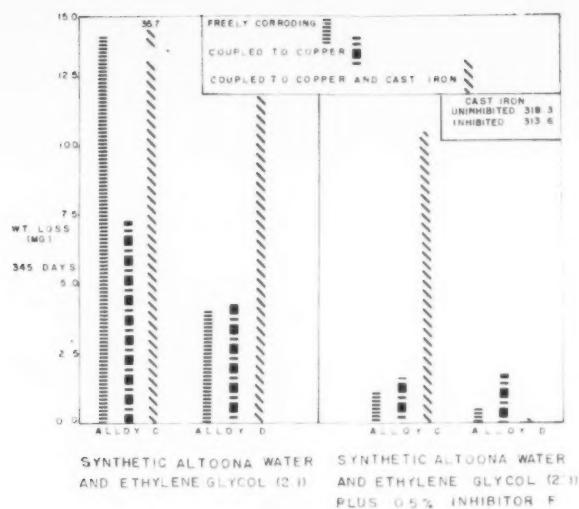


Figure 3

there was significant pitting on all alloys except two when the surface was machined. Cast iron, in similar tests, shows much greater weight losses. Some comparative data are given in the figures.

The data was not sufficient to permit the drawing of any conclusions with regard to the superiority of any alloy over another, except to note that alloy F is definitely inferior. The reason for this is not known and was not investigated any further.

Statistical approach: In the laboratory, some efforts have been made to study the effects of various alloying elements on pitting, this time in Richmond tap water. Ten tensile test bars of each of three variations in composition of 360 alloy were employed. (See Figure 6.) After thirty days in the water, the samples were cleaned of corrosion product and the maximum pit on each specimen determined. These values were then plotted on extreme probability paper. For further details refer to P. M. Aziz's work as published in *Corrosion* magazine (4).

Briefly, a plot of this nature allows a comparison of the probability of a given alloy to pit to a given depth in the environment studied. Rate curves can be obtained, but these require a large number of specimens and measurements.

(Turn to Page 92)

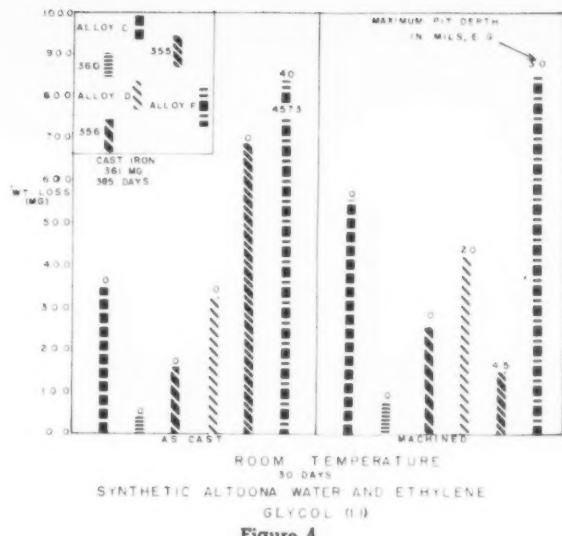


Figure 4

Figure 5

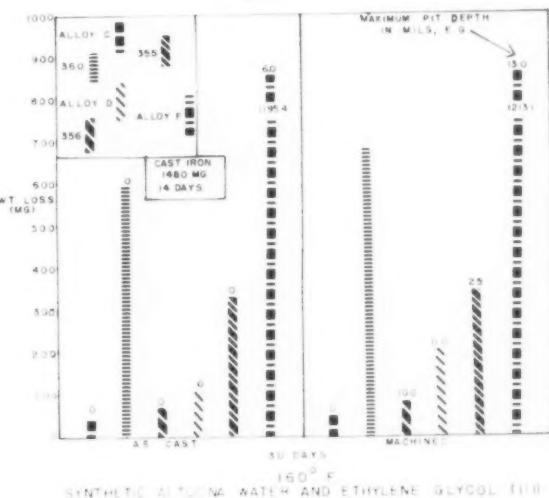
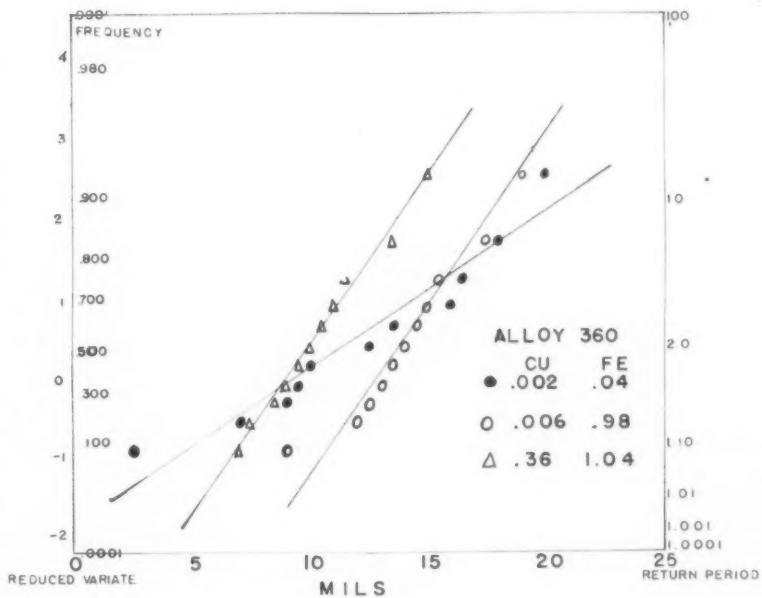


Figure 6 (below)



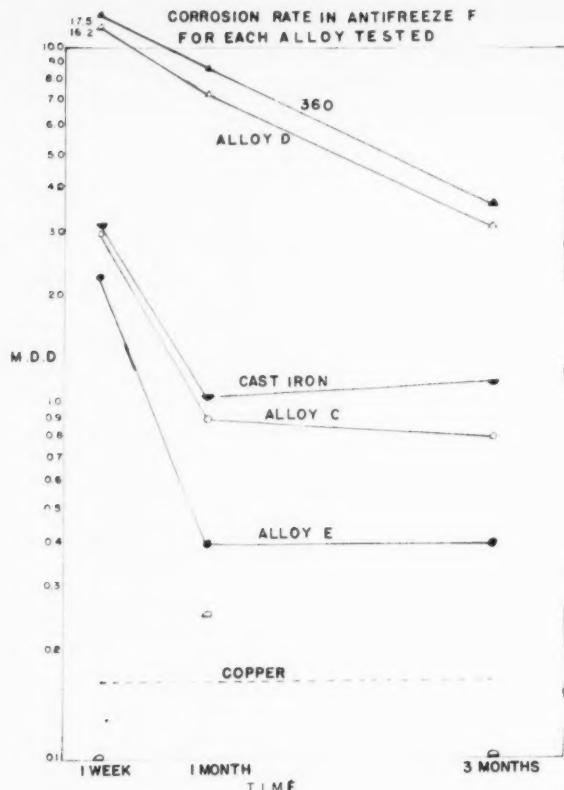


Figure 7

urements and so were not attempted here.

The conclusions drawn from the plot agree with work on wrought alloys that is well established. They are:

1. Higher purity alloys, that is, with low copper and iron impurity content, tend to pit more deeply than alloys with iron or iron and copper contents more typical of commercial alloys.

2. The addition of copper, while it increases the number of pits, reduces the maximum pit depth in a given alloy.

It is interesting to see from this work that copper additions to aluminum-silicon casting alloys not only reduce the risk of galvanic corrosion but also the risk of deep pitting attack which might cause perforation of a water passage wall section. Unfortunately, this alloy modification reduces the general corrosion resistance and therefore makes it even more desirable to use inhibitors with aluminum water cooled engines.

Field Test Results

Laboratory tests are fine to serve as indicators and guideposts for developing items for the market place. However, it was decided that our laboratory would perform field tests on newly developed antifreeze solutions before we would be in a position to recommend suitable antifreeze solutions for use with aluminum engines.

These tests are still in progress. At this time, the data is complete for the three-month exposure series. Additional samples are on test for six months and one year. Whereas this is a modest test, involving seven antifreeze solutions to date and 28 cars, it represents the results from about 1500 individual specimens. These specimens are wafers, $\frac{1}{2}$ " in diameter and $\frac{1}{8}$ " thick, cut from cast tensile test bars in the case of aluminum and cast iron, and from $1/16$ " thick sheet, in the case of copper. In addition to the alloys given above, an experimental alloy designated, "alloy E" was included.

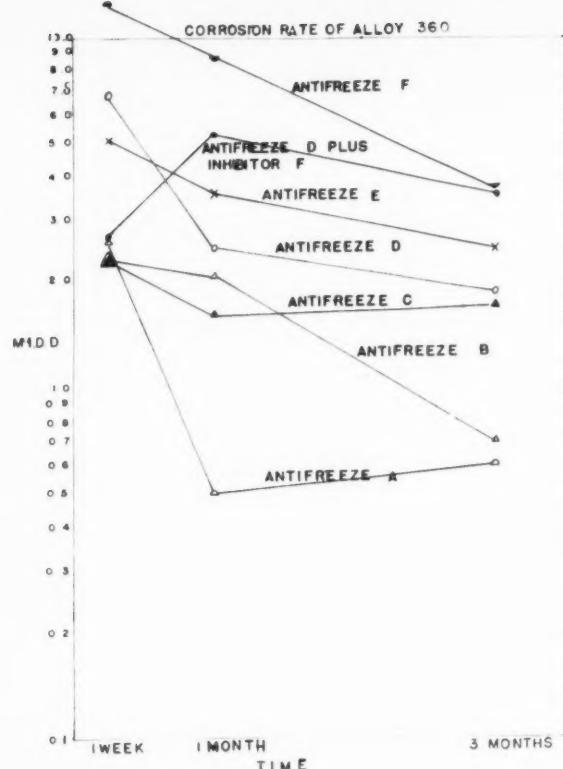


Figure 8

These wafers were strung on nylon rod, separated from each other where desired by fiber washers, $3/16$ " in diameter. The aluminum alloys were tested both "freely corroding" and coupled to copper; cast iron was tested only as "freely corroding"; all copper was galvanically protected by aluminum.

The test strings were placed in the upper radiator hose of cars belonging to laboratory personnel. Richmond tap water was used to dilute the antifreeze, where required, to a 0° freezing point. Aluminum screens were placed over the ends of the hose to prevent loss of the strings into the system.

Periodically, specimens are removed, cleaned and weighed. Corrosion rates in M.D.D. are calculated, since only uniform corrosion has been observed.

It is difficult to present so much information in a manner in which it may be easily assimilated. The major conclusions from the test are that all the antifreeze solu-

(Turn to Page 119)

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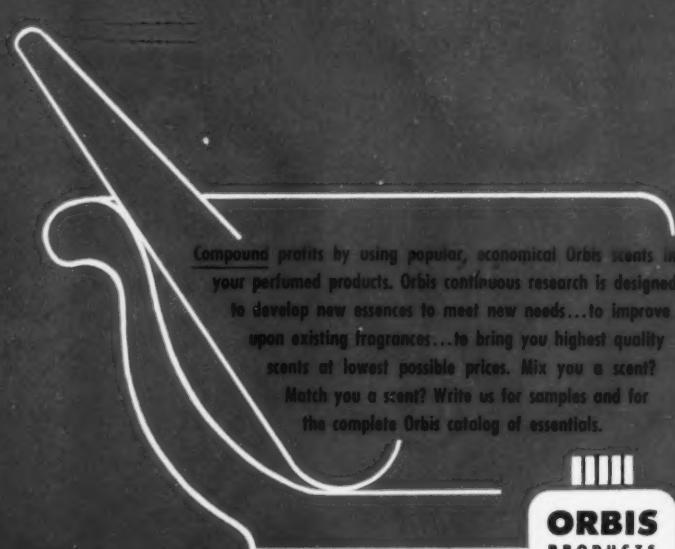


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Epolene LV non-emulsifiable • Epolene LV and Epolene N are useful in similar applications. The LV type is softer than Epolene N, however, and because of its lower melt viscosity is somewhat easier to handle.

Epolene HD non-emulsifiable • An extremely hard material, Epolene HD is nevertheless easy to handle because of its low melt viscosity. It has a high softening point, and may be blended with waxes to increase their melting points. Epolene HD has a higher density than the other non-emulsifiable polyethylenes in the series.

Epolene C non-emulsifiable • Higher in molecular weight (7000) but lowest in density (0.907) of all the Epolene resins, Epolene C may be used in modifying waxes to increase melting points or to improve toughness and gloss.

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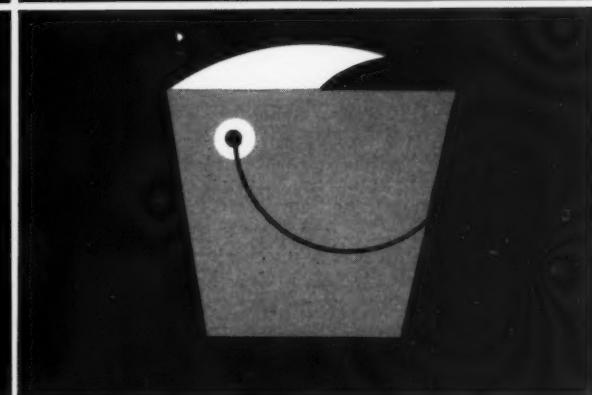
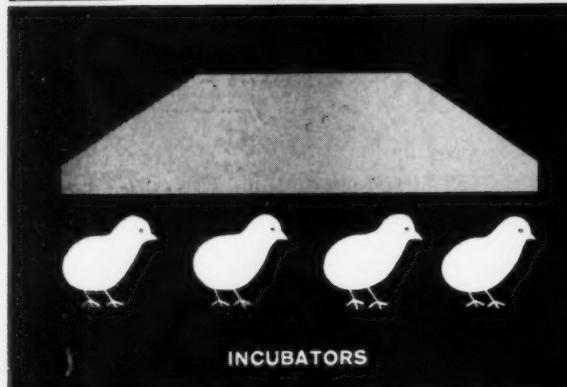
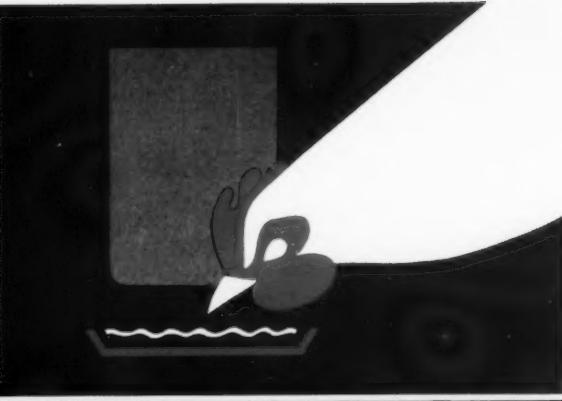
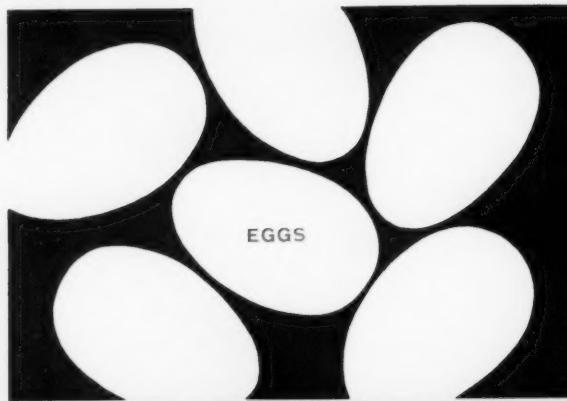
Type	Molecular Weight	Brookfield Viscosity (cps. @ 120°C.)	Density	Penetration Hardness (100g./5sec./77°F., 10ths of mm.)
Epolene E	2500	1500	0.938	2
Epolene HDE	1500	455	0.956	1
Epolene LVE	1500	400	0.939	5
Epolene N	2500	2500	0.928	1
Epolene HD	1500	340	0.938	0.5
Epolene LV	1500	360	0.925	3
Epolene C	7000	16,000	0.907	7

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AEROSOL QUALITY CONTROL

**Organization and operation of programs
for quality control of two important
components of aerosols: containers and
propellants. Meetings on standards urged**

... Metal Aerosol Containers

By Russell P. McGhie*,
Colgate-Palmolive Co., New York

TWO of the prerequisites for the success of an aerosol product are within the loader's control. The first is a good formulation which will do the job for which it was designed and provide added convenience for the user. The second is an attractive package which does not vary in quality. Quality control is one of the main tools for attaining these aims.

In addition to uniformly attractive appearance, the package must answer additional requirements, which are just as important to the filler and to the marketer of the finished product. A successful aerosol container, be it of metal, glass, or plastic, must (1) run efficiently on the production line with a minimum of problems and adjustments; (2) hold the correct amount of product safely; (3) have a shelf life commensurate with the demands of the market (we seek a minimum of one year, prefer two to three years); and (4) withstand the rigors of the production line, shipping and consumer usage.

These requirements are simple enough but how does one go about checking them? By setting up and running a quality control program for incoming shipments of aerosol containers, the loader

will inform himself of the quality of the shipment but will not improve quality of containers as received. All such improvements must originate at the container manufacturer's plant. Any damage which may be inflicted on the container while on the filling line can be overcome by an in process quality check.

While we shall confine our remarks to metal containers, with which we have had most experience, the majority of our observations will apply equally to glass or plastic containers.

What type of quality program should be set up on incoming shipments of aerosol containers? We know what the requirements are, but which points must be checked to insure meeting them?

Russell P. McGhie



To run efficiently on the filling line the container must have the correct dimensions, capacity, strength and durability. The marketer requires good uniform appearance, along with strength and durability.

How to Organize Program

Any good quality control program should begin with meetings between the supplier and customer, to set up the limits of acceptance agreeable to both parties. The supplier cannot provide containers of a quality greater than the capabilities of his line, without installing an inspection system at the end of his line which is costly to both parties and still does not insure good uniform quality.

Therefore, the filler must sometimes agree to limits of acceptance lower than he desires but which are the limits of what the manufacturer can supply economically. Plus and minus tolerances should be set up for dimensions and capacity and a method of measurement agreed upon. This applies only to the dimensions which are critical for the filler, such as capacity, overall height, outside diameter and opening. The capacity is usually checked by overflow measurement and is much more subject to variance in glass containers, due to the method of manufacture, than in metal containers. Other factors such as strength and durability are usually beyond the scope of testing by the filler and are determined only during the production run.

Leakers are the main cause

*Paper presented at 47th annual meeting, Chemical Specialties Manufacturers Association, Hollywood, Fla., Dec. 7, 1960.

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for worry, and the more beads or seams there are, the more chances there are of a leaker. Naturally, in this respect, glass is better than metal. Leakers can become costly to the filler, if they are excessive, since they entail loss of the product already in the container or a salvage operation to reclaim the product at an added expense. However, if it is deemed necessary to check strength and durability, tests and limits can be agreed upon and set up with the supplier.

One effective method of checking these points, calls for taking a good statistical sample of the incoming shipment and actually running it on the filling line. This is practical only for a long run and where the adequate storage space is available to hold the shipment while the sample is being run and checked on the filling line. If the sampling is adequate this test gives a very good idea of the shipment's performance on the filling line.

The durability of the container, as far as shelf life is concerned, is determined before the product is marketed. Where an internal lining system is needed, checking its presence, coverage and proper application is a complicated procedure.

Production sampling of filled containers and aging tests on these samples will give the filler a picture of the quality he has been receiving and shipping to his customers. It will also reveal any possible weak points in the container that may be corrected by the manufacturer.

Durability of the external decoration can be checked by product resistance tests before running on the line. This brings us to the appearance of the container, itself. The decoration can be checked visually (against standards) for color and overall quality of the decoration. Color standards should be set up, illustrating the standard or desired color with the acceptable light and dark limits. We use a color spectrophotometer

as a reference when new standards are being made up, which has to be done every two to three years, to insure that the color is the same.

Decoration defects can be classified according to severity and effect on appearance or legibility. As a rule, we will accept defects, within limits, that do not harm the overall appearance of the design or make the copy illegible. We use actual samples to illustrate the maximum of each defect that we will accept. At present, we are experimenting with three dimensional color slides which will replace these samples. Besides the agreement with the supplier on the maximum defect, a limit must be set on the number of acceptable defects permissible in a shipment.

Most common defects damaging to the appearance of the container include:

1. Eye-holing or cats, eyes where the coating is not continuous;
2. Bleeding where one color runs into another;
3. Misregistration where one color is out of register with another;
4. Poor or missing print or illegible copy;
5. Transfer of one decoration to another due to contact

before proper drying;

6. Scratches from rubbing on the manufacturing line.

Limitations

An extensive container quality control program may be very costly to the filler. The expense must be weighed against attainable results and, based on this balance, a decision must be made on the scope of the program. The filler should bear in mind that quality control at his plant will only tell him what he is receiving but that all improvement must be made by the manufacturer. Rejections are costly to the manufacturer and, if excessive, this cost will eventually be passed along to the loader as an increase in container prices. The loader may harm himself by excessive rejections. They may lead to a stoppage of a run if the container supply is prematurely exhausted.

Major and consistent complaints should be discussed thoroughly with representatives of the suppliers to determine how these problems can be minimized or eliminated. Effective quality control programs of the type outlined above will eventually bring about a general improvement in the quality of aerosol containers.

Propellants and Propellant Systems

By Donald E. Dean,
Shulton, Inc., Clifton, N. J.

PROPELLANTS are the heart of the aerosol product. Their obvious purpose is to self propel a product through a valve. As an integral part of the pressurized package, propellants affect the physical characteristics of the dispensed material through their solubility (or lack of it) in the product base.

Propellants exist in the aerosol container either as: (1) compressed gases or as (2) liquids with a high vapor pressure. Propellants

of the compressed gas type include nitrous oxide, carbon dioxide, and nitrogen. Nitrous oxide and carbon dioxide are slightly soluble gases which are suitable for products where aeration is desired. They are used primarily with food products. Nitrogen, an insoluble gas, is used where no aeration during the dispensing operation is desired. It is the propellant commonly used in toothpastes, syrups, and vitamin preparations.

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pellants are liquids which depend upon their high vapor pressure for dispensing action. The paraffin hydrocarbons and the halogenated hydrocarbons comprise this group. Paraffin hydrocarbons, such as propane, normal butane and isobutane, are extremely flammable. This disadvantage has limited their use primarily to water based products. They have also found some application in mixtures with halogenated hydrocarbon propellant systems in order to reduce costs without increasing flammability.

The most significant contribution to the pressurized packaging industry has been the introduction of fluorinated hydrocarbon propellants. These nonflammable, essentially nontoxic, liquefied gases were discovered in the early 1930's as a result of research aimed at replacing sulfur dioxide and ammonia as refrigerants.

A major portion of aerosol products on the market today employ fluorinated hydrocarbon propellant systems. My area of experience has been concerned primarily with such products. The quality control principles described in this paper, while dealing specifically with fluorinated hydrocarbons, may certainly be applied to other propellant systems as well.

Quality control of propellants in the filler's plant should provide a system for rigid and continuous inspection. This must begin with the purchase and receipt of raw materials through all the production phases, to the finished product. In addition, there should be a continuous program for product shelf life testing to assure stability of the propellant system with the concentrate.

Raw Materials Testing

Propellant testing before acceptance at the filler's plant should not be as extensive as at the producer's plant. The four major suppliers of fluorinated hydrocarbons offer essentially the same overall quality. The highly competitive



Donald E. Dean

situation among these manufacturers works to the advantage of the aerosol filler through maintenance of consistently high quality standards. In fact, by obtaining the producer's full analysis of each shipment, the filler may reduce his sampling program to a shipment spot check system. The interval between checks will be dependent upon the filler's confidence in his supplier.

The sampling and testing program must afford rapid and meaningful results in order to be effective. Before a propellant testing system becomes formalized, each proposed test should be appraised within the framework of the company's use for the material.

At least four quality checks should be considered when testing incoming propellant deliveries. These include tests for: Identification and/or composition; presence of free chloride; moisture content; and presence of non condensable gases.

The most important test is for identification and/or composition. A measure of the total pressure at 70°F. (1) offers a rapid means of identification of propellants either by themselves or in two component propellant mixtures. Pressure vs. composition tables and charts are available from the various manufacturers. A range of plus or minus one pound from the value listed for a given mixture is a suitable specification.

For the most commonly used mixtures such as propellant 11 with propellant 12 and propellant 114 with propellant 12, this will maintain quality within approximately two per cent of the stated composition.

Other physical characteristics such as specific gravity or density measurements (2) may also be utilized as a composition test. However, the techniques and apparatus required for high vapor pressure liquids are cumbersome and difficult to handle. They offer no advantage over pressure measurements.

Vapor phase chromatography as a quality control technique for propellants provides the most specific, rapid and informative method for identification and composition. In fact, for propellant systems employing more than two components, it is the only practical means for an accurate composition check.

Another important test is for the presence of ionic chloride. This is a rapid test which involves mixing alcoholic silver nitrate with the propellant and observing the mixture for any perceptible turbidity. Presence of chloride indicates improper manufacturing technique either through inclusion of phosgene formed by hydrolysis of the starting material or through insufficient removal of water after reaction. In either event, hydrochloric acid will be generated with the resultant risk of corrosion to the metal containers used for the finished aerosol. Detection of even trace quantities of chloride is therefore sufficient reason to refuse delivery of the propellant.

Generally speaking, moisture determinations are required on all aerosol ingredients. In fluorinated hydrocarbons, however, the importance of moisture determination is overrated. A primary industrial use for these liquefied gases is as refrigerants. As such, they must be extremely dry and this advantage is passed on to the aero-

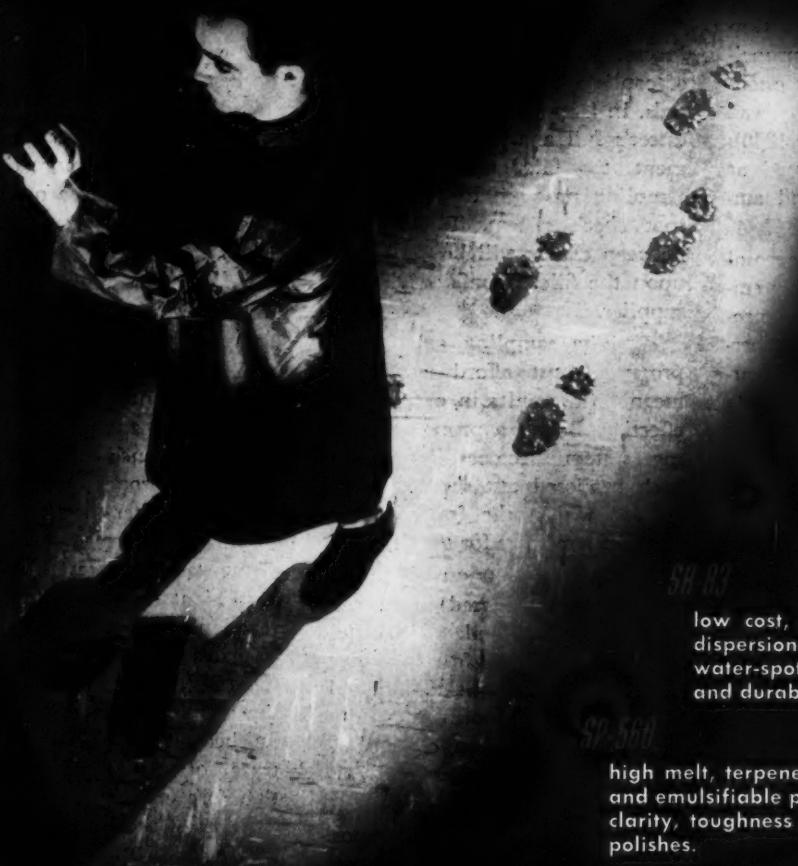
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sol industry. Aerosols certainly cannot tolerate any appreciable amount of water, but the moisture level in propellants is exceedingly small. In fact the current manufacturer's specification could probably be expanded three or four times over the ten parts per million maximum without any change in the filler's present production practices.

The test for noncondensable gases (air) is probably the least important check on propellant deliveries. These can be detected through gas chromatography of the propellant vapor phase. The filler's concern with this test should be centered on his storage tanks. Air in the tank head space may cause a dangerous buildup of excessive pressure. Periodic sampling of the vapor phase from the storage tank offers the best safeguard for finding and remedying this situation.

Production Control Test

This phase of quality control is primarily concerned with insuring the correct blending of materials through all production phases, to the finished product. Usually, propellant systems are added directly to the concentrate already in the container. Thus, the choice of control methods may depend upon the manner in which the product is loaded. The two generally used aerosol filling techniques include the cold fill process and the pressure fill process.

The cold fill process introduces measured amounts of refrigerated concentrate into the container. Then the cold propellant system is added. The valve assembly is placed on the container and crimped. The principal propellant quality problems pertain to the balance and amount of propellants added.

The two tests to be considered in cold filling are for propellant fill weight and for propellant composition. Propellant fill weights are easily found by running marked and tared containers through the propellant filling sec-

tion of the line. They are then weighed after valve crimping to determine the propellant fill. This procedure readily lends itself to statistical techniques such as average and range control charts.

The propellant composition is directly related to pressure measurements. Several techniques for such measurements are described in the CSMA Aerosol Guide (1). However, vapor phase chromatography again offers the best method for specific and accurate checks on propellant composition (3).

In the pressure filling process, the concentrate is added to the container without prior refrigeration; the valve is mounted and crimped, and the propellant system is introduced through the valve. In products containing high propellant percentages, the filling speed becomes dependent on the volume filled through the valve. For propellant systems containing a relatively high boiling component such as propellant 11, the volume filled through the valve may be reduced by previously mixing the propellant 11 with the concentrate in the blending tank. When this is done, the propellant quality control checks require an additional step. This is made during the blending of the concentrate with propellant.

To determine the amount of propellant added in this step, methods such as vacuum distillation described in the Aerosol Guide (4) or a loss on drying will give the volatile-non volatile component ratio. A rapid loss on drying method is to weigh the sample into a tared aluminum dish containing a bed of sand. The amount of residue is determined after flashing off the volatiles over steam.

Such methods are accurate propellant checks only if the concentrate contains no other readily volatilized materials. For volatile concentrate systems to which propellant 11 has been blended, the propellant addition may be controlled by the densiometric analysis described in the Aerosol Guide

(5). Another simple technique makes use of the fact that most concentrate systems contain some ingredients which give characteristic absorption spectra in the ultraviolet or visible regions. Fluorocarbons are completely transparent in these regions. Therefore, the absorptivity of the concentrate-propellant mixture will decrease as the amount of propellant is increased. To adapt this principle for routine quality checks, select an optimum wavelength and measure the absorbance of the concentrate before and after addition of propellant. The decrease in absorptivity may then be used to calculate the propellant-concentrate ratio.

Quality checks for moisture were mentioned earlier as having dubious value when accepting propellant deliveries. In the finished product, however, the moisture level may become critical. Propellant 11 is particularly susceptible to hydrolysis and for many products in which it is used, the moisture specification is 100 ppm or less. Most concentrate systems cannot be made to such levels unless special drying techniques are used. Thus, the finished product moisture concentration becomes dependent upon the dilution with the propellant system.

For example, a product which contains 80% propellant with 10 ppm moisture may tolerate up to 460 ppm in the concentrate. Even with 50 ppm in the propellant system the concentrate can have up to 300 ppm and still be within the finished product specification.

Methods for moisture determination are well documented (6, 7, 8). The propellant manufacturers have developed modified Karl Fischer techniques which are readily adaptable to the needs of the aerosol filler. The general procedure is to bleed the product from a tared container through a bubbler arrangement inserted into the titration flask. The flask contains a suitable water absorbing solvent

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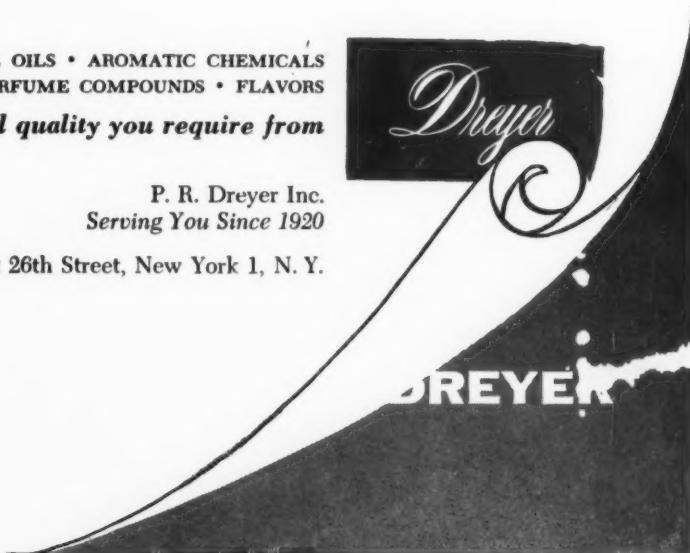
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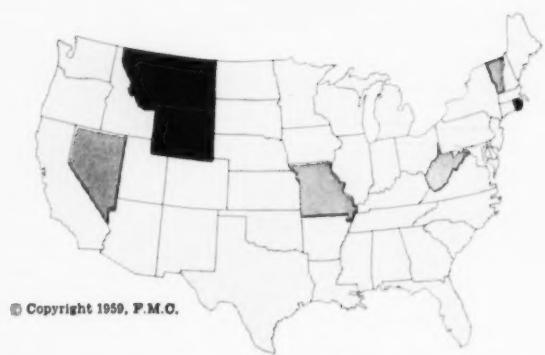
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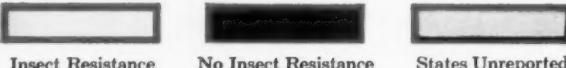


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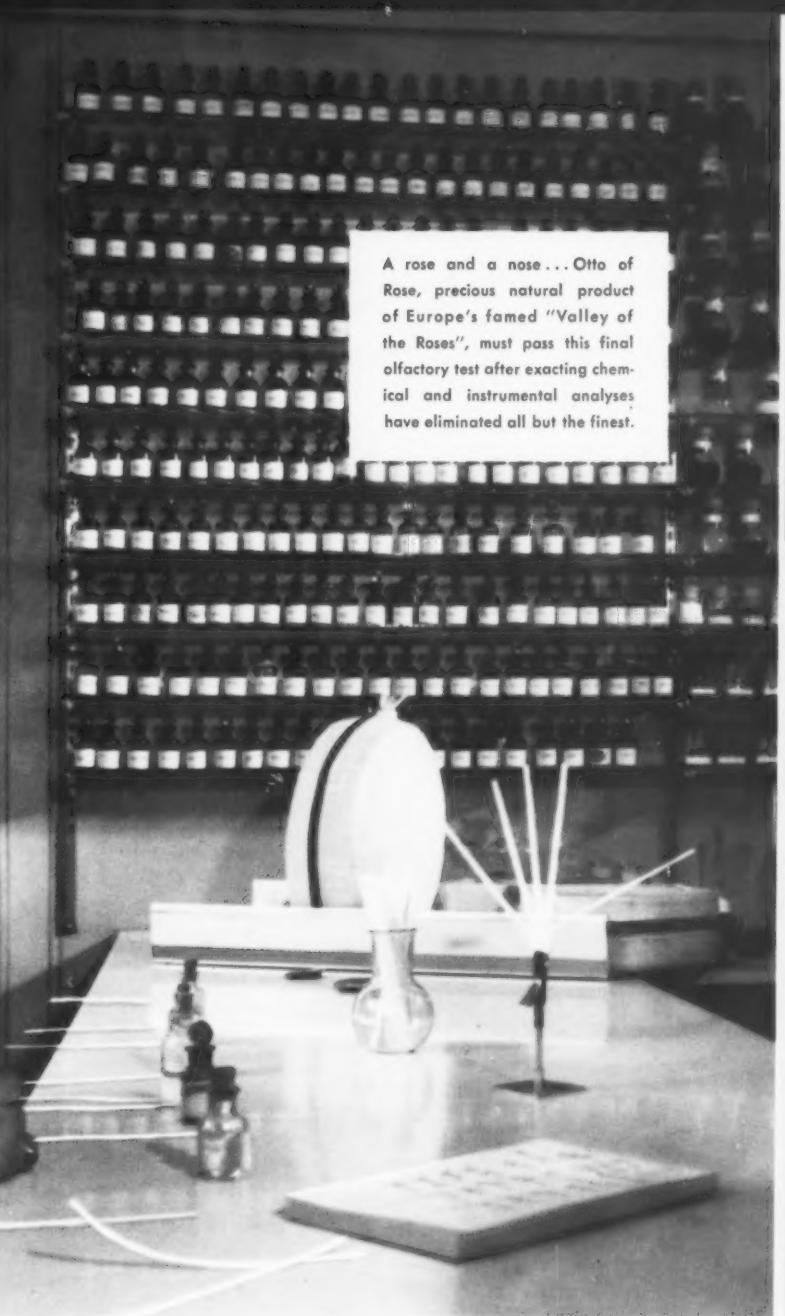
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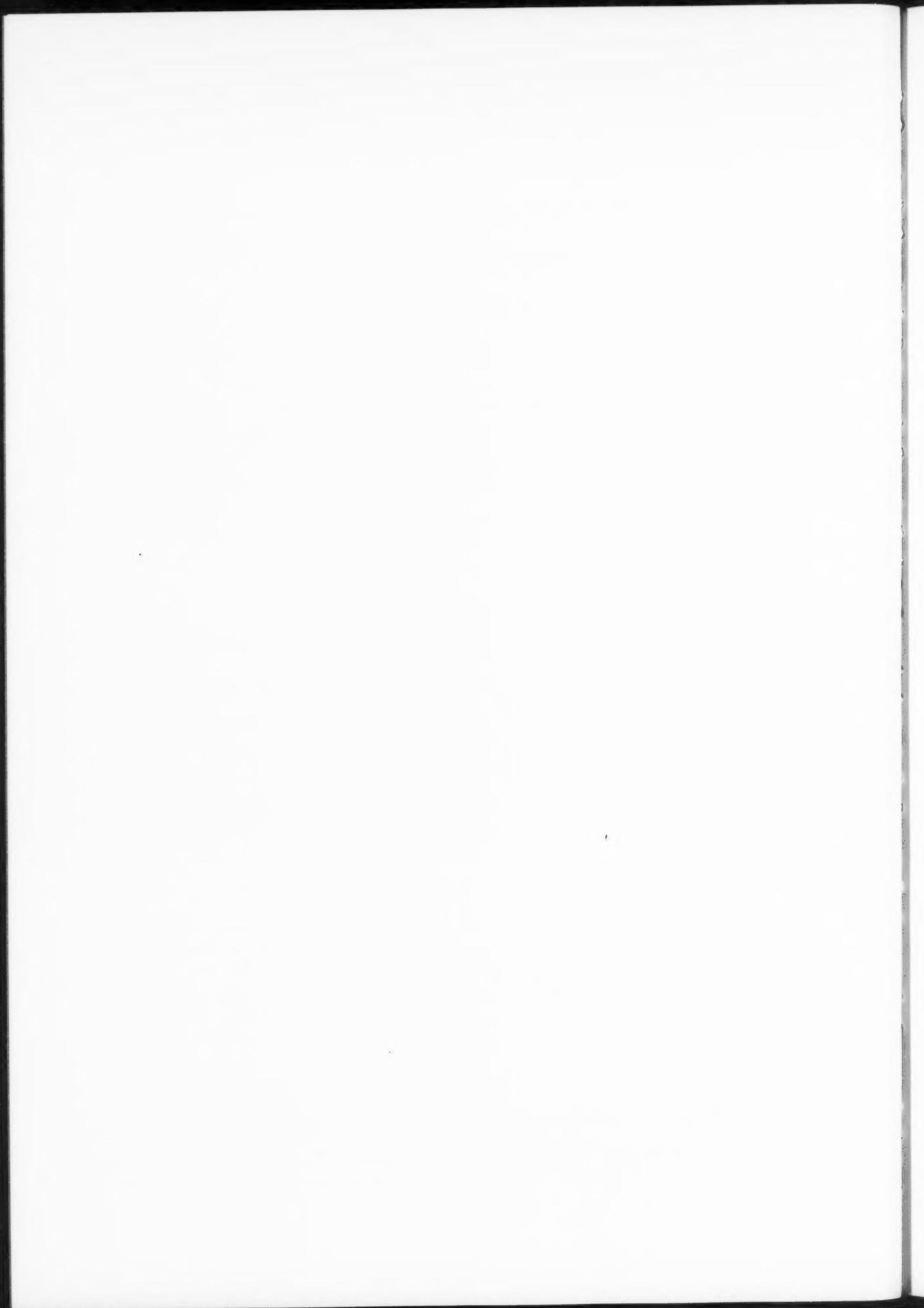
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Hazardous Substances

(From Page 56)

tial" derives from the recognized premise that cautionary labeling directed against wholly insignificant or negligible injury would defeat the very purpose of such a statute. If cautionary labeling were to warn against the risk of some trifling indisposition, then hardly any household product would escape the need for such labeling; the result would be a growing, and ultimately a complete indifference on the part of the user to cautionary statements on all packages, including those which present real hazards of a substantial injury or illness.

For the purpose of this Act, and to resolve any uncertainty as to its application in specific instances, the Secretary of Health, Education and Welfare is empowered to declare by regulation a particular substance to be a hazardous substance, if he finds its character to be within the meaning of this term.

To avoid multiple jurisdiction, the Act exempts from its purview those substances which are now being regulated either under the Federal Insecticide, Fungicide and Rodenticide Act, or under the Federal Food, Drug and Cosmetic Act. Both these statutes are sufficiently effective in extending the necessary protection to the consumer using the products encompassed by them.

The Hazardous Substances Labeling Act supersedes and repeals the Federal Caustic Poison Act, except as to those articles subject to the Federal Food, Drug and Cosmetic Act which are "dangerous, caustic or corrosive."

The new Act describes the several categories of "hazardous substances" as follows:

The term "toxic" applies to those substances which are capable of producing personal injury or illness through the routes of ingestion, inhalation, or skin absorption. A quantitative toxicological

delineation is provided for the special class of "highly toxic" substances in terms of test results on laboratory animals (and, incidentally, in a manner similar to the delineation of this term in a regulation to the Federal Insecticide, Fungicide and Rodenticide Act).

It is useful, at this point, to consider the subject of quantification of toxicity, as this will play an important role in determining the presence or absence of a hazard in a given household product.

Is the toxicity of such a product something that can be measured with a view to determining the point at which it would become a hazard? The answer is yes. An experimentally reproducible measure of toxicity is obtained by ascertaining the point at which out of a number of animals used in the toxicological test, one-half survives the dose administered while the other half is killed by it. Such a dose is designated as LD_{50} , and represents a reasonable criterion upon which the requirements for cautionary labeling could be based. This is so since there exists an approximate proportionality between the body-weight of an animal and the dose tolerated by it. Because of occasional wide variations encountered in the response not only of different species of animals, but also among different strains of the same species, this proportionality is neither exact nor susceptible

to an unqualified projection from the outcome of an animal experiment to the effect of ingestion upon a child or an adult. Nevertheless, when utilized rationally, it may serve to furnish a pragmatic idea as to the size of the dose presumably tolerated by a human being of a given weight.

Parenthetically, the criterion of LD_{50} as defined above, is being employed customarily rather than LD_0 (i.e. a dose at which no animals are killed), or LD_{100} (i.e. a dose at which all are killed), because in tests of this kind the LD_{50} is most readily reproducible for statistical reasons.

The Federal Hazardous Substances Labeling Act provides that a "highly toxic" substance is one whose LD_{50} , upon oral administration to rats, is 50 milligrams or less per kilogram of body weight. This is equivalent to approximately 60 grains, or one teaspoonful (in the case of a liquid) for an adult of 150 pounds. If a substance is found to be "highly toxic" its label must be marked with the word "POISON," and it must carry the signal word "DANGER."

There are a number of instances in which a reported human experience is in disagreement with the test on animals, in that the dose in the former instance is either smaller or larger than in the latter. In this case the statute provides that the human experience takes precedence over the finding on animals.

Incidentally, the signal word "DANGER" is required also on the labels of "extremely flammable" and of "corrosive" substances. The signal word "WARNING" or "CAUTION" must appear on the labels of all other hazardous household products.

Quantitative toxicity data obtained on rats will determine also whether or not a substance is "highly toxic" by inhalation or by skin absorption, as specified by the Act.

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to a substance which will cause destruction of living tissue by chemical action.

The term "irritant" applies to a substance which will cause a local inflammatory reaction upon immediate, prolonged or repeated contact. In this case, too, "substantiality" of the reaction is significant since it is known that even immersion in plain water may cause some minor and transitory skin irritation.

As to the term "strong sensitizer," this category will be covered eventually by a list of certain sensitizing substances to be promulgated by the Secretary of Health, Education and Welfare. Before designating a particular substance as a "strong sensitizer," the Secretary must find that it exhibits a significant potential for causing hyper-sensitivity through an allergic or photodynamic process, also that both the frequency and the severity of the sensitizing reaction are such as to justify its inclusion in this list.

A substance is "flammable" if it has a flash point above 20° and up to 80°F. If its flash point is 20°F or below, the description "extremely flammable" will apply.

A hazardous household product, as defined in this statute, must furnish the following information on its label, in a conspicuous manner:

1. The name and the place of business of the manufacturer, packager, distributor or seller;

2. The identifying name of the hazardous substance, or, in the case of a mixture, the name of each component which contributes to the hazard;

3. The signal word "DANGER" on substances which are "extremely flammable," "corrosive" or "highly toxic";

4. The signal word "WARNING" or "CAUTION" on other hazardous substances;

5. A statement of the principal hazard, such as "Flammable," "Vapor Harmful," "Causes Burns," "Absorbed Through Skin," etc.;

6. Precautionary measures, including any action to be avoided;

7. Instructions for first aid when necessary or appropriate;

8. The word "POISON" on "highly toxic" substances;

9. Special handling and storage instructions for packages which require them;

10. The statement "KEEP OUT OF THE REACH OF CHILDREN," or its equivalent;

11. Any additional or modified labeling statements as may be required by the Secretary of Health, Education and Welfare in a particular case.

Although the Federal Hazardous Substances Labeling Act has gone into effect as of the date of its enactment, i.e. July 12, 1960, its punitive provisions will not be subject to enforcement for six months following enactment. An additional grace period, not exceeding eighteen months, may be granted if the Secretary of Health, Education and Welfare should find that conditions exist which justify such action.

As has been the case with other statutes in this area (such as the Federal Insecticide, Fungicide and Rodenticide Act and the

Federal Food, Drug and Cosmetic Act) so also in the case of the Federal Hazardous Substances Labeling Act the enforcement will call for an early promulgation of regulations for the purpose of a sharper focusing of some of its provisions. As matters stand now, there are a number of instances in which the wording may well convey both the spirit and the purpose of certain requirements, but without providing sufficiently definite lines of demarcation between hazardous and non-hazardous substances. To use but one illustrative example, the term "toxic," while defined as capable of producing substantial injury or illness through ingestion, inhalation or skin absorption, is not correlated with any threshold value of toxicity susceptible of determination or verification by means of a reproducible test. This is why it is felt that an applicable regulation is needed to indicate the particular criterion of toxicity which will place a given product in the hazardous category, and thus necessitate its marking with a precautionary label to be worded as specified by the Act for the set of circumstances involved.

(To be Continued)

FDA Delays Enforcement of Labeling Law

EFFECTIVE date of the enforcement provision of the Federal Hazardous Substances Labeling Act has been extended until Aug. 1, 1961 except for highly toxic, extremely flammable and flammable products. The extension, announced Jan. 31, by the Food and Drug Administration, became immediately effective.

Enforceable Feb. 1, 1961, the act authorizes the Department of Health, Education, and Welfare to extend the effective date for not more than 18 months. The law pertains to interstate distribution and sale of packages of hazardous substances intended or suitable for household use.

The act contains a definition for highly toxic, flammable, and

extremely flammable substances. Definitions for extremely flammable and flammable are based on a physical test involving the flash-point of the substance. The definition for highly toxic substances is based on animal tests.

Commissioner of Food and Drugs, George P. Lerrick stated: "Ample time has elapsed since enactment of the statute for manufacturers, packers, distributors, and sellers of products suitable for household use to determine which of their products fall within these three definitions. Therefore, no extension is deemed necessary for their products.

"More precise definitions for substances that are toxic (but not

(Turn to Page 199)

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SOAP and CHEMICAL SPECIALTIES

Certified Lists Are Harmful

By Earl Brenn*,

Huntington Laboratories, Inc.,
Huntington, Ind.

Part II



FUNDAMENTAL defect of certification of chemical specialties is the impossibility to write a meaningful, consumer specification for a complex chemical specialty based wholly upon laboratory techniques. No such specification is helpful to the buyer except to the extent that it moves out of the laboratory and into the field.

No technical group can write a useful *laboratory* specification for the consumer which will assure him of an acceptable floor wax or an acceptable scrubbing compound. When a product contains ten to 20 ingredients, many of which may have numerous substitutes, and when new raw materials continually appear, no laboratory can cover the situation. For a product used under different conditions in each school, hospital or factory, no series of laboratory tests can provide the answer.

Where a single product must provide many different service features, such as are expected of a floor wax, laboratory specifications will not suffice. For products, where scientific theory has not yet explained completely certain fundamental properties, such as the detergency of a soap, laboratory specifications have little value.

What does actual experience teach, concerning laboratory

specifications for chemical specialties? Following are instances which involve, first, the industry as a whole; secondly, one leading producer; thirdly, a leading, testing laboratory; and, lastly, two prominent consumers.

The wax industry, for instance, met on various occasions and over a long period of time to spend many manhours in technical discussions. The problem was not nearly so complicated as developing a complete floor wax specification, but rather to consider one simple matter: the definition of the term wax. This term proved to be too difficult to define. The search for a definition had to be abandoned. This is a clear indication of the scientific complexities which prevent the development of suitable laboratory specifications for chemical specialties.

The second example refers to the experience of a leading producer. Following is a passage from a paper written by Dr. David Justice of Lever Brothers Co., New York. It appeared in the March 1960 issue of *Soap and Chemical Specialties* magazine and is entitled "Household Cleaners." "Since conditions vary so much from home to home, however, controlled laboratory tests are satisfactory only for screening but not for complete evaluation of product performance. In addition to screening tests, practical use tests in the laboratory utilizing natural soils and surfaces may be conducted.

Unfortunately, these do not predict with certainty performance in the home because soiling conditions are different in different parts of the country, and, even in one location, will vary with the season of the year. Therefore, promising products must also be evaluated by means of consumer surveys or limited market testing before marketing decisions are made." In short, the real test of a product is use by the consumer, and not comparison with a laboratory specification.

The third example, dealing with actual experience, involves a prominent testing laboratory. In the October, 1960, issue of *Hospital Progress* magazine there was an article entitled "Evaluating Housekeeping Supplies," written by Bernard Berkeley who is director of the product development department, Foster D. Snell, Inc., New York. This is the testing laboratory which has been retained by the American Hotel Association to perform the laboratory work relating to its Certified Products List. I quote: "Actually, when it comes to selecting which product is best suited for a particular situation, the purchasing agent must rely on actual service tests carried out in the least biased manner against his present product. There are no bench tests that exactly duplicate all use conditions. Therefore, the final requirement must be that the product under consideration gives satisfac-

*Paper presented at 47th annual meeting, Chemical Specialties Manufacturers Assn., Hollywood, Fla., Dec. 6, 1960.



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tory practical performance and is superior in some point to the present compound."

Final examples, which show what actual experience proves, involve two prominent consumers. Here are some remarks made by two of the speakers on a panel arranged by the Association of American Soap and Glycerine Producers, Jan. 20, 1960. Mr. A. J. Burner of the Port of New York Authority stated: ". . . satisfactory written specifications for certain types of products are not only impracticable but unavailable. The development of resin coatings and synthetic cleaners for instance is at present in an accelerated stage . . . The consumer is best protected in such instances by approving or rejecting these products on the basis of comparative tests alone." In this quotation Mr. Burner used the terms, "comparative tests," as a short form of the phrase, "field tests or comparative performance tests."

Also on this panel, William H. Joy of American Telephone and Telegraph Co. recognized three different classes of products purchased in three different ways. Class 1 consists of straight chemicals like trisodium phosphate, and these staples are bought on the basis of laboratory specifications. Class 2 is recognized as more complicated and includes bar soap, powdered soap, and scouring powder. These are purchased on the basis of laboratory specifications and some field testing. Class 3 includes liquid soap, a more complex substance. Here Mr. Joy uses specifications to prevent harm, but liquid soap is not purchased without heavy reliance on field testing.

The lesson of experience is crystal-clear: For complex chemical specialties, it is not possible to rely upon laboratory tests and specifications. Experience proves that there is no substitute for actual use of the product by many customers in order to determine its value.

None of these remarks ap-

ply to internal specifications developed by all companies for production control. Such tests are useful and simple, and are akin to using a thermometer on a hospital patient to check his condition. None of these statements against specifications is directed against any or all the testing machines which are used in the laboratories of our industry. These machines are useful because they are used for screening purposes and with full knowledge of their limitations. Nevertheless I know of no manufacturer of floor waxes and similar products, however much equipment he may have, who does not employ test floor panels, which are walked upon, for the purpose of securing a partial answer to the question of floor wax quality. Moreover, this partial answer is of more use to him than all his laboratory tests put together, and the final answer must come from actual use by the consumer.

Why Do Lists Continue?

Major reason why certified products lists establish themselves is strong competitive pressures upon manufacturers. There are always misguided buyers who insist that the product they buy must be on a particular approved list. If a strong competitor is selling an approved product, then the manufacturer whose product is not approved may feel compelled to have his product certified. In the minds of some manufacturers competitive pressures to appear on an approved list amount to coercion.

If some manufacturers were to drop off the approved list, the positions of those remaining would be fortified. Therefore, a certified product list catches the manufacturer coming or going.

Another strong reason for the existence of approved product lists is the fact that they serve as crutches for the buyer. He might be able to avoid all concern and responsibility if he buys a certified product. He might be able to dismiss his purchasing duties by do-

ing nothing more than asking only those companies offering certified products to send in bids so that he can pick the lowest price. Temptation to save work and avoid responsibility is very compelling to all of us.

What Is The Answer?

For manufacturers the best course to follow has been set forth by the Chemical Specialties Manufacturers' Association in their Bulletin 245-59 of July 30, 1951. The bulletin expresses official association policy and will not be quoted here in the interest of saving space. CSMA policy suggests self-certification by the manufacturer. If we must have certified products lists, the manufacturer should be permitted to test his own product for approval because he knows in advance many of the chemical and physical properties of his product and, therefore, much of the laboratory work need not be performed.

Present approved lists involve much self-certification. For example, the A.H.A. states that products which qualify for the 1961 list automatically are eligible for free listing in 1962 upon certification that the formulas have not changed. An important element of self-certification is an arrangement providing that the various testing laboratories receive the test sample from the manufacturer along with an affidavit that the sample is identical with the product sold and that the testing laboratory will be notified of any changes in formulation. Perhaps the biggest element of self-certification is the fact that, with possibly one exception, the programs are not policed. No attempt is ever made to check the products in the field.

Because the present lists are based heavily upon self-certification, it would be wise to go all the way and accept complete self-certification. If we must have approved products lists, the manufacturer should be permitted to pro-

(Turn to Page 119)



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duce an affidavit that his product complies, and therefore it would be listed. Better still, if an organization, such as A.H.A., wishes to develop specifications for its members, and if its members desire to adopt these specifications, then products can be purchased on that basis without any certified product list or testing laboratory. The buyer simply presents the specifications to the various sellers and the sale is consummated in the usual manner.

Suggestions For Consumers

How should the consumer purchase chemical specialties? What if there were no seals of approvals, official certified products lists or laboratory specifications for floor waxes, gym finishes, and the like? The answer is that the consumer should purchase from a reliable house which gives him publicly approved quality and value.

If the purchaser requires a complete use-type specification, it would be the following: "The proposed product shall be equal to or superior to the product I am now using." This specification is, in essence, what is being used by the General Services Administration in purchasing tremendous quantities of floor wax. To apply this brief specification the consumer simply tries a new product on one of his floor areas to see how it works.

Summary

Product certification of chemical specialties is a harmful endeavor. Such programs are costly, they give the buyer a false sense of confidence, and they tend to lower product quality. Moreover, there is no sound, scientific basis for employing consumer specifications for most complex chemical specialties.

Suggestions have been made concerning the right way to purchase chemical specialties. These suggestions do not involve the use of certified products lists, seals of approvals, or the use of technical laboratory specifications. ■

Plastomer from Warwick

"Albaplex" is a new plastomer designed for use with polymer emulsions in floor polishes. A product of Warwick Wax Division of the Western Petrochemical Corp., 2 West 45th Street, New York, the material is described as a near white polymerized wax of synthetic origin.

Incorporation of "Albaplex" into a formulation is claimed to impart buffability to the film cast from the finished polish and to lengthen its life by adding to its scar resistance.

In addition to its use in the emulsion polish field "Albaplex" is suggested by Warwick for use in all types of aqueous emulsions in combination with polymer latices of acrylic, vinyl, styrene and other types.

Working samples, quotations and pertinent information are available from Warwick.

— ★ —

Amsco Appoints Davies

Guy F. Davies has been appointed mid-south district sales representative for American Mineral Spirits Co., Chicago, it was announced recently by R. V. Hinman, assistant vice-president and eastern sales manager.

Mr. Davies will handle sales of Amsco's line of waxes, specialty products and petroleum naphthas in Louisiana, Mississippi, Arkansas, western Tennessee and parts of Missouri, southern Illinois and western Kentucky radiating from Cairo, Ill. Mr. Davies has represented Amsco in the southeast since May, 1957 and maintains headquarters in Atlanta, Ga.

Aluminum Anti-Freeze

(From Page 92)

tions performed satisfactorily and that all the aluminum alloys showed acceptable corrosion resistance.

Thus, all data points are relatively small numbers and are bunched together. The following practices were employed: (1) A

logarithmic scale of corrosion rate was chosen, simply to spread out the data, and (2) only the two extreme sets are shown, that is, the antifreeze showing the highest corrosion rates for each alloy tested and the corrosion rates for one alloy in all antifreeze solutions. The curves for the other alloys and other antifreeze solutions would all fall under the curves shown in the following figures.

Alloy variation: Figure 7 shows the corrosion results for four aluminum alloys, coupled to copper, "freely corroding" cast iron and copper. The corrosion rates are dropping; the high initial rate is apparently due to the establishment of equilibrium between the metal and dissolved aluminum hydroxide. It is possible that 360 shows the highest corrosion rate because it contains the lowest amount of copper alloyed in it. Alloys C and E contain copper in the range of one to two per cent, which was established to be an optimum from laboratory test data. Alloy D, with an even greater amount of copper, shows higher corrosion rates, as would be predicted on the basis of our previous tests.

Cast iron is successfully inhibited and, of course, the copper shows negligible attack.

Antifreeze Solutions: Figure 8 shows the results obtained with seven antifreeze solutions and one alloy, 360. Note that the top curve is identical with the one in Figure 7, since these two figures represent the "worst" case in both instances. One solution, antifreeze D, which had inhibitor F added to it, showed atypical behavior. It has been determined since this data was prepared that two of the four cars in which this solution was installed had faulty cooling systems, leading to a loss of solution. A corrected curve using only data from two cars which retained the test solution would put the curve close to that for antifreeze A.

All the antifreezes tested in this program have performed in a

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satisfactory manner. This is not surprising, since the manufacturers have subjected them to rigorous and thorough testing programs before releasing the material for sale.

Conclusions

1. The corrosion of the aluminum engine is no problem if an inhibited antifreeze is used in the cooling system.
2. Aluminum exhibits better corrosion resistance than cast iron but is subject to both uniform dissolution and pitting attack in the aggressive waters commonly found in the United States.
3. An alloying addition of copper minimizes the depth of pitting in cast alloys.
4. A machined surface is more prone to pitting attack than an "as cast" surface.

Acknowledgments

The contributions of J. R. Scott of our metallurgical research laboratories and the laboratory and sales personnel who participated in the field tests are gratefully acknowledged.

Antifreeze formulations were supplied by Dow Chemical Co., E. I. du Pont de Nemours and Co., Jefferson Chemical Co., and Olin Mathieson Chemical Corp., Union Carbide Corp., and Virginia-Carolina Chemical Corp. ■

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Iodine Disinfectants

Iodophors are being used in increasing volume in food plants, on dairy farms, as sanitizers

By John L. Wilson, William G. Mizuno,
and Carl S. Bloomberg*,

Economics Laboratory, Inc.,
Saint Paul, Minn.

Conclusion

IODOPHORS are being utilized in every conceivable sanitizing operation performed in modern food processing plants. The fact that they leave film and spot free surfaces and offer rapid and complete biocidal action, non-corrosiveness, and color indication account for this acceptance.

Areas in which iodophors are being utilized include:

1. Sanitizing of food processing equipment by methods previously discussed, for example, spraying, fogging, immersion, and circulation. Recommended use level of iodophors for these operations varies from 12.5 to 25.0 ppm available iodine. Dairy use is generally recommended at concentrations of from 12.5 to 17.5 ppm, beverage sanitation at 25.0 ppm for elimination of yeasts and molds.
2. Rinsing of dairy and beverage bottles: Rapid acceptance in this area is due to absence of water film on bottles, rinse and spray jets section of bottle washing machines; to water spot free, drier bottles, and to reduction

in corrosion of bottle washing machines.

3. Sanitizing of transportation equipment: Absence of corrosion is important.
4. Sanitizing of general work areas: In areas such as cheese manufacturing plants, beverage plants, meat packing plants, etc., work area sanitation is an important aspect of an overall sanitation program.
5. Sanitizing of dispenser (milk and beverage) cans and milk-pick-up cans at processing plant level: Non-corrosiveness and acidity of iodophors are important in these operations, as many containers are mechanically washed and are not made of stainless steel.
6. Iodophor solutions for cleaning small items, such as lactic starter culture utensils: This type of operation requires thorough cleaning and sanitizing to prevent deterioration of desirable properties of these cultures by outside contaminants.
7. Prevention of mold and yeast growth in cold storage areas: The use of iodophors in poultry and potato storage areas are two examples where odors were reduced and shelf life extended

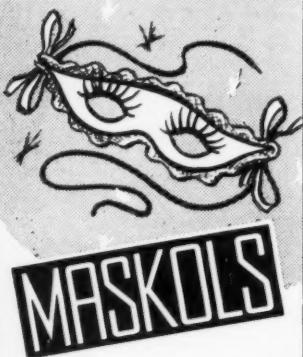
through the use of an iodophor in an overall sanitation program.

Iodophors on Dairy Farms

Iodophors are being used successfully on dairy farms in applications listed below:

1. Removing milkstone deposits from farm utensils where poor cleaning and sanitizing in the past has allowed these to be built up. For this purpose, it is recommended that the concentrated iodophor be brushed directly onto utensils to be cleaned, left to stand for a few minutes, brushed again, and then flushed off. (If all milkstone is not removed in the first treatment, the remnant will be colored by the iodine, will show up clearly and can be softened and removed by a second treatment.)
2. Daily washing of equipment after flushing out with water: Iodophors are recommended for this use in concentrations which give 25 ppm of available iodine. (They provide the benefits of combined iodophor-detergent-sanitizer action.)
3. Washing cows' udders, again at recommended concentration of 25 ppm. Color of the solution serves as a rough indication of iodine strength and solution should be renewed before color is completely gone. (The non-irritating properties of iodophors are especially beneficial in this use. In fact, some users claim that iodophors actually heal teats.)
4. Sanitizing equipment immediately before use: For this purpose, a concentration of 12.5 ppm is recommended.
5. Cleaning and sanitizing milking machine equipment (25 ppm iodine for cleaning and 12.5 for sanitizing), before and after use.
6. Sanitizing teat cups on the milking machine when moving from one cow to the next. (Dip in 25 ppm available iodine solution.)
7. Soaking inflations: However, if

*Paper presented at third annual meeting, Canadian Manufacturers of Chemical Specialties Association, Montreal, Can., Oct. 26, 1960.



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these are properly cleaned and sanitized with iodophors regularly, soaking is not necessary.

8. General cleaning and sanitizing inside and outside of equipment, floors, and general premises of the milk house.

Eating Utensil Sanitation

Traditionally, hypochlorites or active chlorine compounds have been the officially recognized and recommended chemicals for eating utensil sanitation in hotels, restaurants, schools hospitals. Properties of chlorine and iodine sanitizers, compared earlier in this paper, make it evident that iodophors can be useful for sanitizing eating utensils. This is borne out by actual use.

Iodophors are suitable sanitizing agents for the final rinse of the three-sink hand dishwashing operation. In addition to being as effective as germicides as chlorine, iodophors have the advantage of giving better draining and drying characteristics and of providing a color indicator. Iodine sanitizing solutions lose their color prior to complete loss of germicidal activity. The iodine sanitizing rinse, being slightly acid, tends to prevent build up of hard-water films, encountered when alkaline chlorine sanitizing solutions are used.

Iodophors are useful not only as the final sanitizing agent, but also as the germicidal detergent for light duty hand dishwashing. Recently, special brush-type glass-washing machines have been developed, designed to operate with cold water in combination with an iodophor type of detergent-sanitizer. Both laboratory and field tests indicate that very satisfactory glass washing results can be obtained with this combination without hot water or separate sanitizing rinses. The combination of vigorous brush action and effective use of the cleaning and sanitizing properties of the iodophor makes this possible.

Iodophors successfully sanitize such items as tables, carts, pots

and pans, and miscellaneous food preparation and serving equipment. Some chain restaurant operators have found that iodophors are especially effective when applied by spray on such equipment and in areas which are not easily sanitized by hand.

Iodophors are suitable for general sanitizing in hospitals. However, in hospitals, use concentrations of from 50 to 75 ppm of active iodine are generally recommended rather than the 12.5 to 25 ppm used in eating utensil and dairy sanitization.

Summary

- I. As a background for consideration of iodophors, we first reviewed iodine and iodine formulations used up to about 1950.
1. Made a brief review of the history of iodine and its biocidal uses;
2. Indicated a few of the physical and chemical properties of iodine and iodine preparations which are related to its biocidal uses;
3. Indicated various biocidal uses of iodine and iodine preparations and compared its action to that of chlorine and some other biocidal agents;
4. Pointed out advantages of iodine such as its very fast action, effectiveness at low concentrations and low temperatures, resistance to dissipation by ammonia and extraneous organic matter and its nearly uniform effectiveness on a large variety of organisms;
5. Mentioned disadvantages of low water solubility, staining of and corrosiveness in solid form to tissues, its high volatility and odor;
6. Pointed out its color as being a useful indicator of its concentration in solution.
- II. We then gave background information on iodophors, indicating—
 1. What they are and materials used for making them;
 2. Their general properties and how they retain all the useful biocidal characteristics of iodine and modify (or "tame") undesirable properties;
 3. Advantages of iodophors as detergents, as well as sanitizing agents.
- III. Uses of iodophors were next pointed out for—
 1. Food processing plants;
 2. Dairy farms;
 3. Hotels, restaurants, hospitals, and schools.
- IV. A brief description was given of equipment suitable for automatically injecting proper amounts of iodophors into flowing water for spray-



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ing, flushing and sanitizing rinse purposes.

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Future of Polymers

(From Page 88)

The important point is that, at the completion of the polymerization, a chain is formed which contains active groups capable of reacting with other chains. This has provided a coating material exhibiting a combination of properties heretofore not attainable within a single polymer species. Abrasion resistance and general chemical resistance are outstanding in these materials.

Urethanes are not yet ready for floor polishes. Their stability in water emulsions still leaves much to be desired. Removal from a flooring surface is almost impossible. Handling of the basic materials still presents problems. Yet, the very important advantage of extreme toughness will certainly spur efforts to overcome these difficulties.

Removability

With the predicted improvements in polymer performance during the next few years, it is certain that the trend toward a higher percentage of polymer in the finished formulation will continue. Thus, the burden of providing the required removability, which formerly was achieved through the alkaline sensitivity of the resin and wax portions of the formula, will become an important function of the polymer latex itself. Presently this is accomplished by copolymerization with carboxylic acid monomers such as methacrylic or itaconic acids. However, in using appreciable amounts of such monomers, it is inevitable that some water soluble polymer is formed during the polymerization reaction. The result is that water spot resistance, wet abrasion and recoatability of such systems are not always completely satisfactory.

Other approaches to the removability problem are the use of alkali insensitive, nonionic polymer systems or the less familiar

cationic polymer. Both of these methods are under study and such systems have actually been used in other applications where eventual removal of the protective coating is not required. For floor polish applications, it is necessary to insert some functional group into the polymer structure so that its film could be disintegrated by some inexpensive chemical. To our knowledge, no significant progress has been made by this approach as yet.

In summary, much technical effort is being expended in development and improvement of polymers for all types of coatings. This extensive program is going to make available to the floor polish industry a whole range of new polymers that will permit significant improvements in several areas. Specific possibilities have been mentioned in connection with gloss, durability and removability. As a result of this progress, polymer latices will play an even greater role in polishes than at present, but other ingredients such as waxes and resins will also continue to be important constituents.

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Automation Cleaning

Klenzade Products, Inc., Beloit, Wis., has released an illustrated brochure covering automation cleaning systems for dairy plants.

The booklet outlines the part that the basic factors of time, temperature, detergency, and physical action play in automation cleaning. Schematic layouts and cycle diagrams are also given together with a variety of photographic illustrations of timing and control panels. Components and cleaning cycles are also explained with installation photographs of automation equipment.

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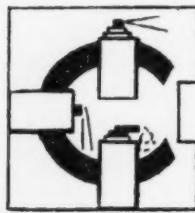
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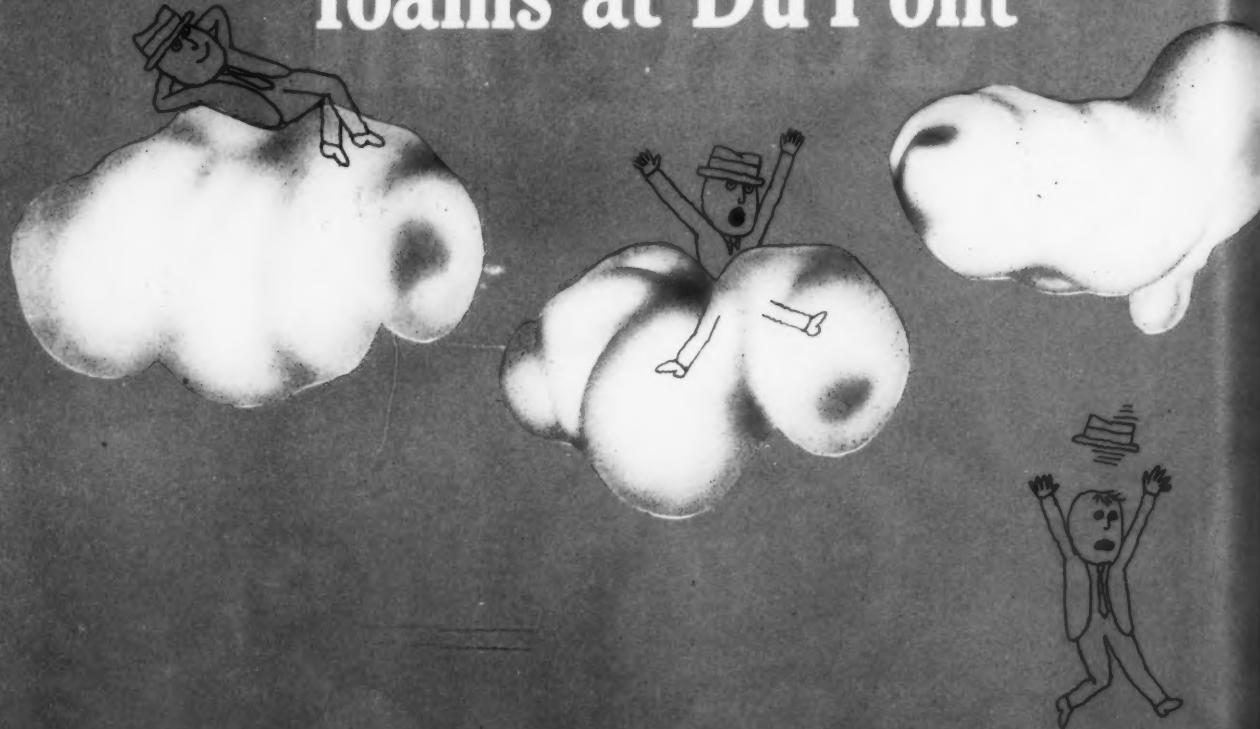
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Plastics



The sky's the limit on aerosol foams at Du Pont



HIGH STABILITY FOAMS

This is the stiffest branch of the Du Pont foam family. It includes a host of cousins with varying degrees of both stability and density. Ideal for shaving lather, rug and upholstery shampoos.

LOW DENSITY FOAMS

Members of this group are limber and highly workable—the kind you can rub in effectively and wipe off easily. They can sustain high detergency—make excellent dog shampoos, for example.

PRESSURE-SENSITIVE FOAMS

These foams collapse quickly when worked, leaving your product to do the job intended. They carry high wettability, perform wonderfully well with anti-fog formulations, glass cleaners and pre-shave lotions.

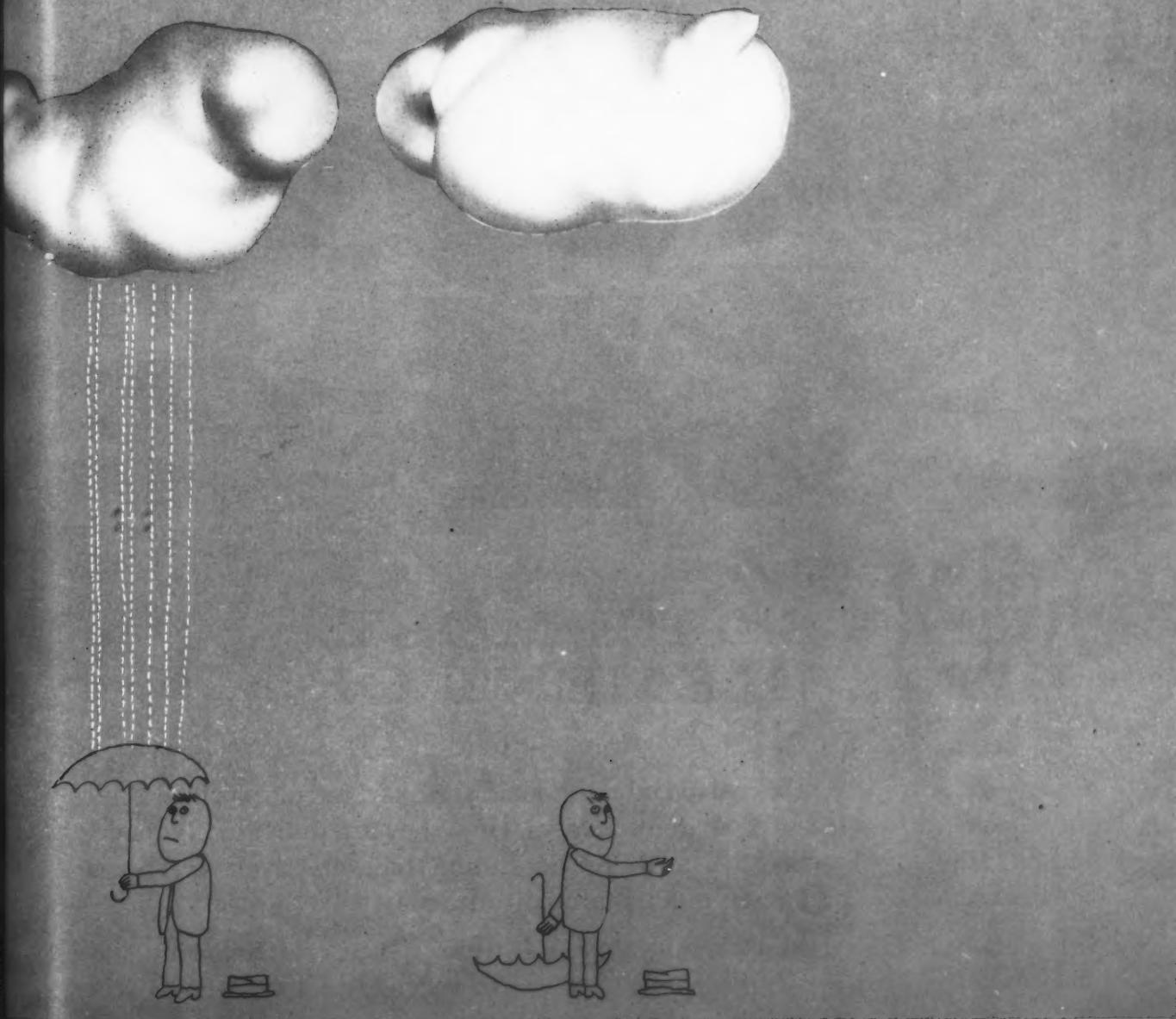
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Foams of the future are born at Du Pont. And Du Pont's family of aerosol foams has grown into the largest and most varied—with new members constantly being added. Many of these foams have already been happily married to a tremendous number

of successful products. If there's a foam in the future of your product, a foam with special physical properties, you can find it at Du Pont. Ask your "Freon" representative about the greatest collection of foams and aerosol-product information available.



QUICK-BREAKING FOAMS

Disappearing specialists, these are the "now-you-see-it, now-you-don't" foams. They break quickly upon application, provide exceptional wetting and ease of application, are perfect for such uses as hair preparations.

NON-AQUEOUS FOAMS

Newest and most versatile family members, these foams are based on polyhydric alcohols instead of water. They offer wide variation of stability, density and wettability. Applications? Virtually unlimited.

Best-selling aerosols are powered with

FREON[®]
propellents

Better Things for Better Living . . . through Chemistry



For more information on how Du Pont "Freon" laboratories will assist you in formulating the ideal foam for your product, write to: E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Div., N-2420AA, Wilmington 98, Delaware.



In Aerosol Valves . . .

WHAT'S THE MOST VITAL ELEMENT OF SUCCESS?

Spray head, delivery tube, valve body or housing, gasket, ferrule, spring . . . all play a role in the success of an aerosol valve. How they are individually made, and how they are put together as a unit determine their effectiveness. This is where the most vital element of all is brought into play.

Know-how. It's more than a material part. It's experience, craftsmanship and pride in manufacturing the best aerosol valve. An axiom of quality is the greater the know-how, the better the product. When you buy Newman-Green aerosol valves, you're buying the most vital element of all . . . know-how. Try us soon.

NEWMAN-GREEN *Creative Aerosol Valve Engineering*

151 Interstate Road Addison, Illinois Kingswood 3-6500

PVA Water Soluble Films for Packaging

By **Woodrow J. Vogel***,

Reynolds Metals Co.
Richmond, Va.

AS a major producer of packaging materials, Reynolds Metals Company began experimentation with a water soluble transparent film back in 1948. Many prior years of experience in packaging market applications, taught us that packaging is a key factor influencing the form of products and sales trends in many industries. Deodorants, for example, were long marketed in cream form, in saturated pads, etc. The advent of plastic bottles with spray and roll-on applicators allowed a product change to liquids.

The convenience and ease provided by these packaging innovations were instrumental in expanding the use of deodorants. We believe that packaging with water-soluble "unit-of-ease" pouches will similarly provide the impetus for both changes in products and/or marketing of a wide range of water-dispersible products.

The development and commercial adaptations of water-soluble film packaging are largely aimed at the following markets:

1. Laundry Products

- A. Synthetic detergent and soap powders
- B. Dry bleaches
- C. Starch
- D. Water softeners
- E. Dyes and bleaches

2. Agricultural and Home Garden Chemicals

- A. Insecticides
- B. Fungicides
- C. Herbicides
- D. Concentrated chemical fertilizers

3. Additives

- A. Dyes and tints for vinyl-latex water base paints

- B. Anti-rust agents for automotive cooling systems, etc.
- C. Septic system conditioners
- D. Industrial additives—anti-slime agents for paper pulp processing, dyes and other additives for textiles, etc.

These and smaller markets are expected to take up to 11 million pounds of water-soluble film by 1965.

Laundry Products

After years of promise, the first major consumer packaging application was in the film's largest potential market—soluble unit-of-ease pouches for concentrated laundry detergents. Called "Toss," such a detergent has been successfully introduced and marketed in Northern California. While it represents a commercial success for Techno-Economic Services, Inc., which marketed the product, it has also been the vanguard of a much larger merchandising trend.

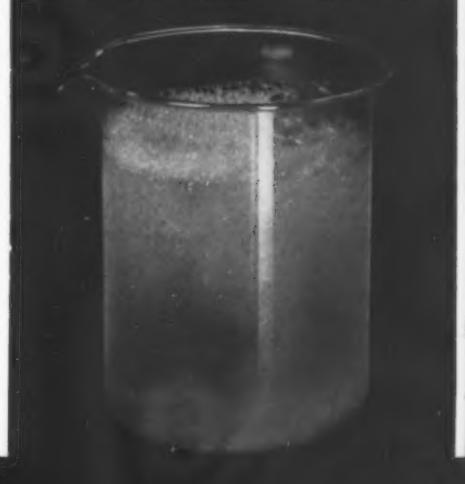
First, this venture confirmed what had previously been proven in the laboratory—water soluble PVA film is suitable for this application. Secondly, it supported what our consumer panel studies had shown—that the housewife likes the idea of a soluble unit-of-ease pouch for detergents, etc. Once these facts were established, sales efforts moved into a second and more exacting stage.

Top, right: New "Reynolon" plastic package, filled with detergent powder, is tossed, unopened, into beaker of water.

Center: Twenty seconds later, package begins to dissolve.

Bottom right: Within 45 seconds package has dissolved completely.

New packaging material, a water-soluble polyvinyl alcohol film, is produced by the plastics division of Reynolds Metals Co. It can be used for packaging detergents, soaps, insecticides.



*Paper presented at 47th annual meeting, Chemical Specialties Manufacturers Association, Hollywood, Fla., Dec. 6, 1960.



MARLEX* approved by all major detergent suppliers

The inherent advantages of lightweight, attractive, and unbreakable plastic containers are unquestioned—more sales appeal, less costly to ship, no breakage, to name a few. Equally unquestioned are the reasons why MARLEX high density blow-molding resins are widely approved for modern detergent containers.

MARLEX blow-molding grades cost no more! Yet, they provide high stress cracking resistance, great rigidity and strength per mil of wall thickness . . . as well as easy processing at high production rates—in short, superb and economical plastic containers.

Today, countless marketers of liquids—starches, bleaches, waxes, shampoos, cough syrups, and the like—are switching to containers made of MARLEX. Our engineers have pioneered the use of high density polyethylene and ethylene copolymers for blow-molded containers. The accumulated knowledge and experience of their work is available to those interested. *MARLEX is a trademark for Phillips family of olefin polymers.

For more information, see your container supplier . . . or contact us directly.

PHILLIPS CHEMICAL COMPANY

Bartlesville, Oklahoma

A subsidiary of Phillips Petroleum Company



We had to reconcile film properties with seemingly mutually exclusive physical requirements dictated by the composition of prospective customer's products. The need for good machine handling characteristics had to be considered along with a variety of subjective requirements such as solubility rates, low temperature flexibility, etc. It soon became apparent that a single formulation could not serve best the needs of all customers even if they were packaging only one commodity, for example, synthetic detergents.

Close liaison between customers and our research and development and manufacturing groups resolved many of these problems. One of the rewards of this joint effort was the adoption of water soluble PVA by Adell Chemical Company for pouches of their Lestare dry bleach. Introduced in late 1959 and marketed in PVA pouches since early 1960, Lestare has had very favorable reception.

Procter & Gamble recently began market-testing "Tide" "Redi-Paks" in the Jacksonville, Florida area. They are sold in eight-to-the-box and 16-to-the-box sizes, and each packet is sufficient for a normal wash load. Many other detergent and dry bleach manufacturers are testing or preparing to market similarly packaged products.

Solubility characteristics have presented no great problem in this field, since laundry products are normally used in relatively warm water and in the presence of agitation. This makes for complete dissolution in a relatively short period of time leaving no residual particles that can be redeposited in the clothing. Since water is used as a plasticizer in the film, there was a tendency for the film to dry out and embrittle at sub-zero temperatures. The low temperature flexibility has been improved somewhat.

Otherwise, water soluble PVA exhibits good strength and



Water-soluble PVA film issues from a caster at the Grottoes, Va., plastics plant of Reynolds Metals Co. Film is automatically rolled as it is manufactured.

excellent shock resistance under a wide range of atmospheric conditions. The film is compatible with most laundry products except bleaches containing active compounds which release free chlorine. The chlorine reaction insolubilizes the film.

In addition to offering the consumer the obvious advantages of convenience, accurate pre-measurement, safety and protection, PVA also acts as a soil suspending agent. Tests have indicated superior cleansing performance by detergents packaged in this manner.

Agricultural Garden Uses

This general market promises to eventually rival the laundry products market as an outlet for water soluble films. PVA film is quite suitable in laundry products because it dissolves readily in warm water. For most applications with agricultural and home garden chemicals, a film must dissolve in water at temperatures of 40° F. and lower.

Moreover, dissolution must be complete even at that temperature to eliminate any danger of clogging the orifices of standard spray equipment. Further, the many highly corrosive chemicals used must be definitely shown to be compatible with PVA. Water-

soluble film packaging of these products offers great advantages. Considerable efforts are being expended to capitalize on them in commercial applications.

In many instances, wettable powders can be packaged in water soluble pouches and master cartons at a savings compared with the cost of mixing with water and bottling. Considerable freight savings may result. Products in pouches take up less space than their bottled equivalents and can be more effectively and attractively packaged. Since many of these items are sold in self-service hardware stores, drug and variety chains and supermarkets, this is a very important consideration.

The consumer benefits from the convenience and safety features of such packages. All he has to do is mix the product with a pre-measured quantity of water. Many agricultural and home garden chemicals are highly deleterious. The pouch virtually removes risk of the user coming into contact with its contents.

Additives

Most additives require accurate measurement. Premeasured quantities of a water dispersible product placed in a water soluble pouch insure accurate and repro-

The contract packager had the answer...another success story from the ISOTRON file.



He has a knack for bright aerosol ideas

For a contract packager with a reputation for solving tough aerosol problems, look to Powr-Pak of Bridgeport, Conn. A leading aerosol innovator, Powr-Pak has helped formulate many new products, including one of the first and best known brands of aerosol shoe polish.

If what you market can be sprayed, brushed, poured or squeezed, chances are Powr-Pak can help you convert to profitable aerosol packaging. Three gleaming filling lines are equipped to handle quickly and efficiently a large variety of pharmaceutical, cosmetic, household and industrial products. Em-

phasis on speed is matched by rigid quality control procedures at all critical production stages. And Powr-Pak's modern laboratory can help reformulate your product for aerosol packaging.

If you're thinking "aerosols" it will pay you to talk to an experienced contract packager. He can give you valuable marketing and technical assistance—can recommend the proper container, valve and propellant for your product. Many leading packagers always specify ISOTRON®—the extra-pure, extra-dry propellents that are factory-sealed for your protection.

ISOTRON—The Key to Modern Living



Isotron Department
PENNSALT CHEMICALS CORPORATION
Three Penn Center
Philadelphia 2, Pa.

ducible results. Typical of such applications are dyes and tints for vinyl latex water base paints, dyes and other additives for textiles, septic system condensers, etc.

Water soluble PVA is currently being used for a pouch containing an antirust and conditioning agent for automotive water cooling systems. The pouch is simply dropped into the radiator, and the agent is dispersed as the film dissolves.

Many additives have noxious odors. PVA is an outstanding gas and odor barrier. Odors developing during the normal shelf life of a product from paradichlorobenzene, naphthalene, kerosene, etc.—will be contained with a minimum of evaporation and subsequent odor transmittal. PVA also has excellent resistance to greases and oils.

PVA is available in .0015 inch and .002 inch thicknesses with yields of 15,000 square inches per pound and 11,250 square inches per pound respectively, and in widths up to 54 inches. Generally, the .0015 inch film is used for product weights of 8 ounces or under and the .002 inch film for weights of 8 ounces. For most products a pouch will require film in the range of 7½ square inches to up to 50 square inches. Costs for film and packaging operations generally approximate \$10 per thousand packets, depending on the size and type of packet, packaging speeds, etc.

Water soluble PVA films are manufactured by the casting process. Alternate and lower cost methods of production such as calendering and extrusion were studied but, due to the physical characteristic of PVA resin, were found to be impractical. While this is unfortunate, the use of casting enables the production of highly transparent, homogenous, and closely controlled gauge and surface finish film.

The manufacturing process involves the following steps: The resin is mixed in water with a high

shear mixing unit until a homogenous solution is produced. This aqueous solution is then transferred from the mixing area to the casting unit. The casting machine is basically an endless metal belt supported between two drums approximately 100 feet apart.

This belt takes the form of an endless conveyor upon which the mixed solution is carried through carefully controlled drying zones. The gauge and width of the film are regulated by a doctor bar at the feed end of the machine. Control of belt speeds, solution formulation and viscosities, drying conditions, etc., have a critical bearing on the important physical characteristics of the film.

While the principle of the casting process may appear relatively simple, the refinement of the equipment and the techniques can best be described as an art rather than a science. The present state of this art has been achieved only by spending many years and many dollars in a continuous effort to master the production of the product now commercially available.

Meticulous quality control precautions are taken at every step of the process. This begins with laboratory tests of incoming raw material and progresses with a laboratory check at each point of the process. Physical measurements are made while each batch is in production to assure that specifications

are met. (Following the casting operation, the film is rewound and inspected visually to insure a quality product for the customer.)

A full scale packaging unit is installed in the Reynolds Metals manufacturing plant to run actual packaging tests with the customer's product. This yields valuable data on the machinability characteristics, heat sealing qualities, and other performance characteristics.

While PVA is currently the only commercial article available in the water soluble field, constant studies are being made to reduce the cost of such films without sacrifice in quality.

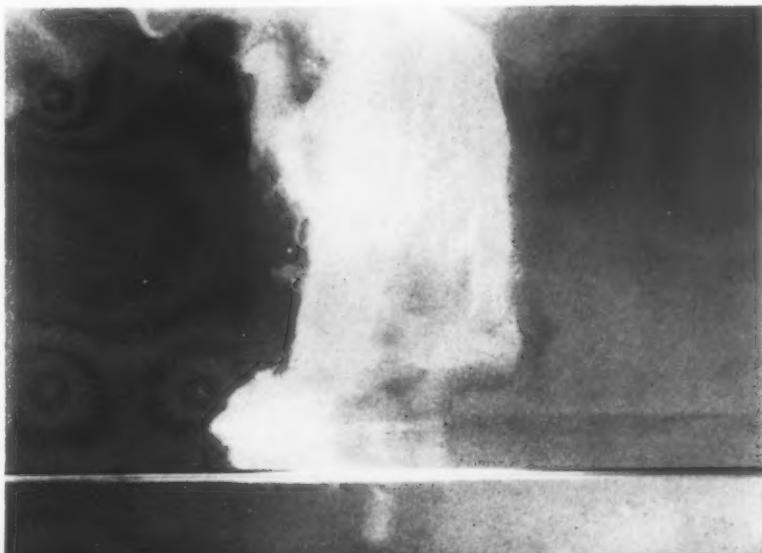
While we are now marketing polyvinyl alcohol water soluble films which have received acceptance in the applications previously mentioned, we are not by any means satisfied that these products have reached the ultimate in physical properties and performance. Accordingly, we are now engaged in an accelerated research and development program with the following objectives:

1. Improved solubility and heat scalability.
2. Improved low temperature flexibility.
3. Closer tolerance control of the physical parameters.

We have already achieved a film that will release its contents in water at 140°F. within 45 seconds and completely dissolve within five minutes. As the tempera-

(Turn to Page 199)

Within 45 seconds the water-soluble plastic package of synthetic detergent powder dissolves completely in water.





Celanese introduces

THE Royal "DESIGNER" BOTTLE

the advantages of custom design—the economy of stock prices

Created to give your product packaging an "exclusively yours" look. The Royal "Designer" bottle is available in 12, 22, and 32 oz. sizes, with your label in silk screen, offset, Dennison Therimage or paper. Return coupon for sample bottle and full information.

CELANESE PLASTICS COMPANY, ROYAL CONTAINER DIVISION, 744 BROAD STREET, NEWARK 2, N.J.

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Celanese Plastics Company is a Division of Celanese Corporation of America
Canadian Affiliate: Polybottle Limited, Toronto

Dennison TherimageTM, Celanese[®]

Export Sales: Amcel Co., Inc. and Pan Amcel Co., Inc., 180 Madison Ave., New York 16, N.Y.

packaging notes

Flaherty Joins Imco

William J. Flaherty has been appointed sales representative in New York City, for Imco



William J. Flaherty

Container Co., Kansas City, Mo., a division of Rexall Drug and Chemical Co., it was announced recently. He will handle Imco accounts in the New York and Philadelphia areas.

Prior to joining Imco, Mr. Flaherty was associated with Avon Products Inc., and Chesebrough-Ponds, Inc., both New York.

— ★ —

Redesigns Packages

Mennen Co., Morristown, N. J., announced recently a packaging redesign for their four tube shaving cream products, by Francis Blod Design Associates, New York.

The simplified design, incorporating a new Mennen logo into the format, uses a blue-green and green, on a contrasting white background as a strong attention getter; producing improved readability. The overall appearance of the carton has been improved by using a new type of glossy finished board. The carton supplier is Wilkata Folding Box Co., Kearny, N. J. The tube revision includes a new conical shaped cap, turquoise for menthol-iced and white for regular, on both types of shave

cream. The tube suppliers are Bradley Sun, division of American Can, Washington, N. J., and Peerless Tube Co., Bloomfield, N. J.

Price of the brushless shave cream and brushless menthol-iced, both four and three quarter ounces, is 55 cents. The lather shave cream and lather shave menthol-iced, both four and one quarter ounces, are priced at 60 cents.

— ★ —

New Packaging Group

"Bulk Packaging and Containerization Institute," a trade group dealing primarily with new concepts in shipping containers and practices, has been organized.

The institute will serve as a clearing house for information on all such containers and will aid in establishing specifications.

Glenn Mather, experienced in packaging association management, has been named managing director, and Frank W. Green, packaging consultant, has been named chairman of the "Potential Packaging Cost Reduction Committee."

Both tube and carton of Mennen's brushless and lather shave creams, regular and menthol-iced, have been redesigned to eliminate confusion to the trade and consumers, in addition to giving point of purchase impact.



Brockway Appoints Kneip

Appointment of Walter Kneip as district sales manager for the state of Virginia by Brockway



Walter Kneip

Glass Co., Brockway, Pa., was announced recently by A. G. Beltz, general sales manager. Mr. Kneip was formerly sales representative, in the Baltimore area for Tygart Valley Glass Co., Washington, Pa. He is responsible for the combined

(Turn to Page 143)

HOW MUCH DOES A CONSUMER COMPLAINT COST?



A LITTLE CARE IN THE
CHOICE OF YOUR SUPPLIER
WILL GO FAR IN CUTTING
COMPLAINTS AND REJECTS.

That's why Precision Valve Corporation takes a lot of care in processing their valves . . . quality controls at every step of the way reduce the chances of rejects to a minimum, and continuing research reduces the minimum.

Take care . . . take Precision Valves for your aerosol products.



PRECISION VALVE CORPORATION
700 Nepperhan Avenue, Yonkers, N.Y.

What's New?

"Exec Rubber Cement Spray," in an aerosol dispenser, introduced by Esterbrook Pen Co., Camden, N. J. is claimed to keep rubber cement from drying out. Cement is applied by turning the can upside down and pressing on a sloping plastic applicator. A toggle-type valve, by Risdon Manufacturing Co., Naugatuck, Conn., is used with the actuator-applicator to operate the package. Filled by Fluid Chemical Co., Newark, N. J., six-ounce can retails for 98 cents.



Introduction of a new line of "Esquire" shoe polishes, trademarked "Touch of Magic," was announced recently by Knomark, Inc., Brooklyn. Polish is packaged in a 1 1/2 oz. metal tube from Peerless Tube Co., Bloomfield, N. J. A round foam sponge is attached onto the neck of the tube. Both plastic attachment holding foam applicator and plastic cap are produced by Plasti-vac Corp., Williamsport, Pa. Tube is packaged in a round cardboard container produced by Niemand Bros., Elmhurst, N. Y. A polishing cloth is also packaged in cardboard tube. Marketed nationally at 49 cents each.

A new design in the packaging of "Lestare Dry Bleach," has been announced by Lestoil Products, Inc., Holyoke, Mass. Printing of aluminum foil laminate over-wrap, is accomplished with glossy transparent inks, allowing full value of foil to show through. Foil, heat sealed for greater protection, is said to prevent moisture. A convenience feature is a press tab on the face of the package, indicating a new tear-strip, which permits easy access to the water-soluble bleach packets. Price remains unchanged, 49 cents for 10 packets.





Captions: This Page

John H. Breck, Inc., Springfield, Mass., has introduced a new one and one-half ounce bottle for its three shampoos. New package comes banded to a 4-oz. bottle of shampoo for 60¢. Smaller package retails at 30¢. Shampoos are for dry hair, identified by a red band; for oily hair, yellow band; and normal hair, blue band. Bottles by Owens-Illinois Glass Co., and Brockway Glass Co.; molded plastic closure by Owens-Illinois and Custom Plastics.

"Sterile/Disinfectant Cleaner," of Advance Chemical Co., San Francisco, is now available in handy, non-breakable plastic, quart-size containers. Product combines detergent action with antiseptic iodine.

Gojer, Inc., Akron, O., is marketing a new liquid protective skin coating for industrial workers, called "Go-Jo Liquid Protective Skin-Coat." Packaged in polyethylene bottles, small enough to fit in pocket.

Acqua Lina Mfg. Co., Brooklyn, is marketing laundry bleach in one-gallon, half-gallon and one-quart blow molded high density polyethylene containers made by Hydrocarbon Chemical Co., Keyport, N. J. A case of 4 one-gallon conventional containers weighs 54 lbs., as compared with 38 pounds for plastic.

"Thawz-It," new ice and snow melter, was introduced recently by Harley Soap Co., Philadelphia. In pellet form, product contains rust inhibitor. "Thawz-It" comes in 25, 50, 80 and 100 lb. drums, and a 10 pound "emergency" carton (shown).

Captions: Facing Page

Edith Rehnborg Cosmetics, Buena Park, Calif., recently introduced purse-sized container of perfume mist, available in three fragrances. Line is marketed by Myttinger Corp., Long Beach, Calif. One-half oz. gold finish container, spray dome actuator and metering valve are made by Risdon Manufacturing Co., Naugatuck, Conn. Loading by Western Filling Corp., Los Angeles. Perfume mist retails for \$4 in "Pirouette" and "Adagio" fragrances; "Pavan" is \$4.75.

"Re-Juvenate Carpet and Upholstery Shampoo" of Bryn Mawr (Pa.) Products Co., is now available with individually designed, two color labels. Shampoo, made with chemicals from E. I. du Pont de Nemours & Co., Wilmington, Del., contains brightening agents. Available in three sizes, one-gal. white plastic bottles, 5-gal. pails, and 55-gal. drums.

Letheric division of Helene Curtis Industries Inc., Chicago, has launched its new purse size "Tweed" hair spray with a special introductory offer. The new size is offered free with the purchase of a regular "Tweed" hair spray; a \$3.00 value for \$1.75, plus tax. The purse and regular size bottles produced by Wheaton Plastics. Valve by Precision Valve Corp., Yonkers, N. Y. Regular aquamarine boudoir bottle, and new aquamarine purse size, capped in gold, appear in white nylon net sack, with white tag at closed top announcing offer. Purse size is not for sale separately.

"Red Lilac Cologne Mist" by Letheric, division of Helene Curtis Industries, Inc., Chicago, is packaged in 1½ oz. aerosol spray glass flacon, accented by vertical gold bands. Container is topped by a gold-plated fluted cap, with Letheric lion seal in relief. Box incorporates the "Red Lilac" design. Price is \$2.00, plus tax.

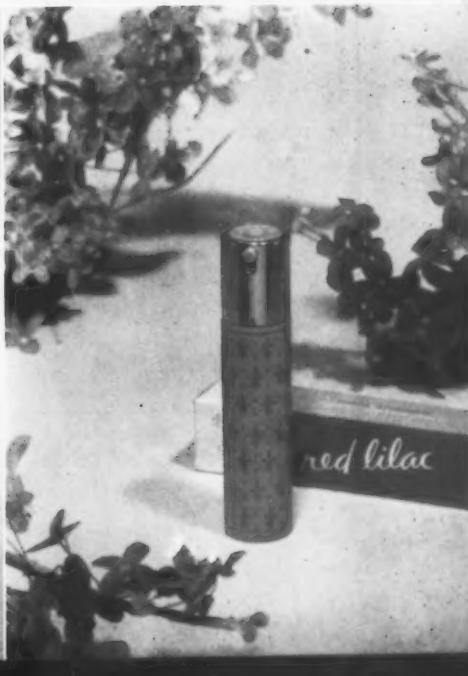
"Medic Air," an antiseptic—produced by Kidde Manufacturing Co., Bloomfield, N. J., is being used in conjunction with a special tourniquet and pressure device manufactured by the firm. The three and a half ounce container by Peerless Tube Co., Bloomfield, has a specially adapted B9-FG valve by V.C.A. Inc., Bridgeport, Conn.

Carven Parfums, New York, has just introduced purse-sized container of aerosol perfume for three of its fragrances. Lightweight golden container holds a quarter ounce of "Ma Griffe," "Vert et Blanc," or "Robe d'un Soir." Container is equipped with a Risdon Manufacturing Co. metering valve. Stainless steel inner container, also by Risdon, holds fragrance, and actuator. Package has plastic outer container, and is filled by Aerosol Packaging Service Corp., Newark, N. J.

"English Lavender" and "Red Roses" soap are featured in first women's line promotion of 1961, by Yardley of London, Inc., New York. Special four-tablet box in either fragrance, comes with a \$1 bottle of matching cologne as a gift to retail for \$2.

"Incanto" spray mist cologne created by Simonetta Perfumes, Rome, is packaged in an aerosol container designed and produced by Risdon Manufacturing Co., Naugatuck, Conn. White and black container has Risdon metering valve. One ounce container is filled by Powr-Pak, Bridgeport, Conn., to retail for \$3.50.

"Red Lilac Toilet Water," by Letheric, a division of Helene Curtis Industries Inc., Chicago, is now available in a purse atomizer. Circular lilac case, decorated with golden fleurs de lis, holds approximately 400 metered sprays. Retail price: \$1.25, plus tax.



CONTAINER CORPORATION OF AMERICA WORLD'S LARGEST PRODUCER OF PAPERBOARD PACKAGING

BEGINNING YESTERDAY,
CCA PEEL-PROOF
MEANS A
WAX LAMINATION
TWICE AS STRONG
AT NO INCREASE
IN COST



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Our laboratories researched it,
our mills developed it, the
new Concora Peel Tester verifies it:
CCA's PEEL-PROOF laminating process
more than doubles bond strength,
hence carton performance. One way
to be sure of lamination strength
is to spot-check shipments with
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still, specify PEEL-PROOF board and
depend on CCA facilities coast to
coast to deliver nothing less. The
CCA packaging system will pack,
move and sell your product faster,
better—more profitably. Information
from Container Corporation of America
99 Park Avenue, New York 16.

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FOLDING CARTONS SHIPPING CONTAINERS SEFTON FIBRE CANS MOLDED PLASTIC PRODUCTS POINT-OF-PURCHASE DISPLAYS PAPERBOARD
CONTAINER CORPORATION OF AMERICA CHICAGO 3... LOCAL SERVICE FROM 122 STRATEGICALLY LOCATED MARKETING CENTERS

(From Page 137)

Brockway-Tygart Valley sales in Virginia.

Prior to joining Tygart Valley in 1956, he had been with Crown Cork and Seal Co., for 23 years serving as sales correspondent, salesman, assistant sales manager, sales manager, closure division.

New Knox Offices

Knox Glass, Inc., Knox, Pa., glass container manufacturer, has established district offices at the Daily News Building, 220 East 42nd St., New York. Donald J. Schile has been named district sales manager.

In addition to furnishing space for the company's sales department, the new quarters will also provide offices for management executives who have occasion to be in New York.

Peerless Stock Offered

An offer of 150,000 capital shares of Peerless Tube Co., Bloomfield, N. J., manufacturer of collapsible metal tubes and aerosol containers, was made to the public recently. The proceeds of the sale, at four dollars a share, will be added to general funds. New capitalization will be \$176,000 first mortgage notes, bearing 5 1/4% interest, and 450,000 capital shares.

FPBAA Schedules Program

The theme of the first general session of the annual meeting of the Folding Paper Box Association of America, to be held March 20-23, at the Drake Hotel, Chicago, will be "what makes for success in the folding carton industry." Preceding the opening session there will be seminars on "A Profit Improvement Program—Cost Reduction" conducted in the fields of labor, production and cost accounting.

The 1961 Folding Carton Competition and educational exhibits will be opened at 9 a.m. March 20 and announcement of the 100 best cartons of the year will be made Tuesday afternoon, March 21.

Gaines CCC Sales Manager

L. E. Gaines has been appointed sales manager for the plastic bottle and tube division of



L. E. Gaines

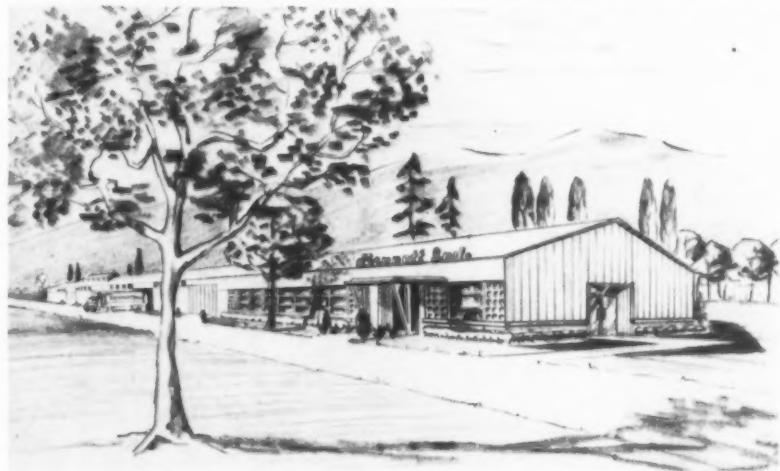
Continental Can Co., New York, it was announced recently by Charles F. Lenhard, general manager of the division.

Prior to joining Continental, Mr. Gaines was associated with the Plax Corp., Hartford, Conn., for seven years, ending his tenure there as a district sales manager.

Bennett Industries Expands

Stevens A. Bennett, chairman, Bennett Industries, Inc., Peotone, Ill., announced the firm will open in the near future a branch plant in Alta Loma, Calif. The present buildings on the 120,000 square foot site will house highly automated steel pail fabricating

Artist's conception of branch container manufacturing plant of Bennett Industries, Inc., Peotone, Ill., located at Alta Loma, Calif., to be opened in the near future.



equipment, to manufacture containers from three to seven gallons. The latest "hi-bake" lining equipment will also be installed.

Packaging Corp. Expands

Plans to acquire Worcester Moulded Plastics Co., Worcester, Mass., were announced recently by Packaging Corp. of America, Evanston, Ill. Walter S. Goodspeed, chairman of Packaging Corporation's executive committee, said the Worcester firm, a leading custom moulder of both expanded and injection plastic, will form the nucleus of a new plastics division.

Since 1957, the use of expanded polystyrene in packaging has increased from 100,000 pounds annually to an estimated three million pounds for 1960, only three and one half per cent of the \$75,000,000 market for interior packaging.

Horace Gooch, co-founder and treasurer of Worcester Moulded Plastics Co., is slated to become vice-president of Packaging Corp. of America in charge of the plastics division. Philip J. Graham, president and co-founder, will head the research, engineering and machine development.

Packaging Corp. of America was formed July 31, 1959, in a three way merger of the former American Box Board Co., Central Fiber Products Co., and the Ohio Boxboard Co.

PETERSON FILLS LIQUIDS AND AEROSOLS



AEROSOLS...

filled by efficient, accurate, high-speed pressure or cold-filling methods with halocarbon or hydrocarbon propellants (or a combination of both).

LIQUIDS...

filled in metal, glass or *plastic* in any size from 2-ounce containers to 55-gallon drums.

And when your products must be sent to common destinations in different types of packages, Peterson can do all the filling and, then, combine the various types into dollar-saving single shipments. For complete details, write, wire or phone ...

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Filling and Packaging Co.

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new trade marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12 (a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of \$25 must accompany each notice of opposition.

Cadillac—This for anti-freeze. Filed Feb. 24, 1960 by Therm-x Chemical and Oil Corp., Westbury, New York. Claims use since Jan. 1959.

Solv—This for deodorizing and disinfecting solution. Filed Apr. 4, 1960 by Lien Chemical Co., Franklin Park, Ill. Claims use since Feb. 15, 1960.

Life—This for fireproof preparation for use on dust mops. Filed Apr. 18, 1960 by National Chemsearch Corp. of Texas, Dallas. Claims use since Mar. 4, 1960.

Swoop—This for aerosol insecticide. Filed June 20, 1960 by H. Talbot Co., Cincinnati, O. Claims use since May 16, 1960.

Ramp—This for antifreeze composition for use in liquid cooling systems for engines. Filed June 30, 1960 by General Aniline & Film Corp., New York. Claims use since June 16, 1960.

Jingo—This for liquid cleaner for hand washing of dishes, glasses, silverware, pots and pans, equipment, furniture, surfaces, floors, walls and the like. Filed Aug. 11, 1958 by Soap Specialties, Inc., Philadelphia. Claims use since Oct. 14, 1957.

Peaches 'N Creme—This for shampoo for professional use in beauty parlors. Filed Sept. 17, 1959 by Helene Curtis Industries, Inc., Chicago. Claims use since Aug. 21, 1959.

Bowenite—This for laundry detergents. Filed Apr. 5, 1960 by Bowen Processing Co., Largo, Fla. Claims use since Nov. 16, 1959.

Sanit-Drain—This for drain pipe opener. Filed Apr. 6, 1960 by American Home Products Corp., New York. Claims use since Sept. 2, 1959.

Salont—This for hair preparations, namely hair shampoos. Filed Apr. 8, 1960 by Hamilton Laboratories, Brooklyn, N. Y. Claims use since Dec. 15, 1959.

Skleen—This for detergent for floors, vinyl, asphalt, rubber, linoleum, tile, terrazzo, and painted surfaces. Filed June 13, 1960 by Vestal Laboratories, Inc., St. Louis, Mo. Claims use since May 1, 1952.

Crystal-Nu—This for aluminum chrome cleaner for aluminum, chrome, copper, brass, and ceramic tile. Filed June 20, 1960 by Leon Chemical Industries, Inc., Warren, Mich. Claims use since Nov. 23, 1959.

Cyanamid—This for insecticides. Filed Sept. 16, 1960 by American Cyanamid Co., New York. Claims use since June 1957.

Brush Boy—This for preparation for removing paint from brushes, rollers and hands. Filed Apr. 7, 1960 by Kyanize Paints, Inc., Everett, Mass. Claims use since Jan. 12, 1960.

Wishy Wash—This for all-purpose detergents for household use. Filed Apr. 22, 1960 by Piggly Wiggly Operators' Warehouse, Inc., Shreveport, La. Claims use since Jan. 18, 1960.

U. S. Rubber—This for abrasives and polishing materials. Filed Feb. 12, 1960 by United States Rubber Co., New York. Claims use since 1955 or earlier.

Freewax—This for self polishing floor wax. Filed May 11, 1960 by Chemical Corporation of America, Tallahassee, Fla. Claims use since Sept. 12, 1960.

Wax, O—This for preparation for washing and waxing automobiles. Filed June 6, 1960 by Simoniz Co., Chicago. Claims use since May 18, 1960.

Brom-o-gas—This for fumigant. Filed Jan. 12, 1960 by Great Lakes Chemical Corp., Manistee, Mich. Claims use since June 1, 1959.

Alaska—This for anti-freeze solution. Filed June 21, 1960 by Acme Refining Corp., Newark, N. J. Claims use since May 27, 1960.

Chemson—This for cleaning fluid for use on metals, glass and ceramic parts, and as a milkstone remover. Filed Mar. 21, 1960 by Acousica Associates, Inc., Plainview, N. Y. Claims use since Dec. 11, 1959.

Ker-cell—This for laundry detergent. Filed June 6, 1960 by Wyandotte Chemicals Corp., Wyandotte, Mich. Claims use since Mar. 17, 1960.

Spray-Vac—This for all purpose cleaning composition. Filed May 19, 1960 by George R. Wosepka, Billings, Mont. Claims use since May 10, 1958.

Quick-Glo—This for oven cleaner for removing grease, grime and crust from the surfaces of cooking ranges. Filed May 23, 1960 by Quick Chemical Corp., Chicago. Claims use since Mar. 4, 1960.

Mrs. Clean—This for sudsing cleaner, cleanser and detergent. Filed May 31, 1960 by Procter & Gamble Co., Cincinnati, O. Claims use since Dec. 4, 1959.

Trazon—This for abrasive type, chlorinated cleaning material in powdered form. Filed May 6, 1960 by Oakite Products, Inc., New York. Claims use since June 22, 1959.

Avant Garde—This for perfume oil. Filed Sept. 1, 1959 by Firmenich, Inc., New York. Claims use since Aug. 27, 1959.

Microtraps—This for adsorbents. Filed Jan. 28, 1960 by W. R. Grace & Co., New York. Claims use since June 19, 1959.

Noresidu—This for surgical detergent for cleansing surgical glassware, instruments and rubber tubing. Filed Feb. 19, 1960 by Wesley J. Richards, doing business as Richards Pharmaceutical Co., Santa Monica, Calif. Claims use since Feb. 23, 1951.

Therm-x—This for anti-freeze. Filed Feb. 24, 1960 by Therm-x Chemical and Oil Corp., Westbury, New York. Claims use since Sept. 1955.

HCA—This for herbicides. Filed July 29, 1959 by Allied Chemical Corp., New York. Claims use since Sept. 13, 1954.

Valdan—This for rodenticide. Filed Sept. 8, 1959 by Private Brands, Inc., Kansas City, Kans. Claims use since July 28, 1959.

Urab—This for herbicides. Filed Oct. 21, 1959 by Allied Chemical Corp., New York. Claims use since July 8, 1959.

Glis—This for laundry starch. Filed Feb. 5, 1960 by Aerosol Corp. of America, Wellesley Hills, Mass. Claims use since July 9, 1959.

Fontana—This for scented air freshener spray for household use. Filed April 14, 1960 by Claire Burke, Inc., Charlottesville, Va. Claims use since Feb. 4, 1960.

Mala-Spray—This for insecticide for the control of flies and other insects. Filed May 20, 1960 by M.F.A. Oil Co., Columbia, Mo. Claims use since April 22, 1960.

Mala-bath—This for flea and tick powders and sprays for dogs and cats. Filed May 20, 1960 by M.F.A. Oil Co., Columbia, Mo. Claims use since April 19, 1960.

Jet Starch—This for starch. Filed July 12, 1960 by Barcolene Co., Boston, Mass. Claims use since June 23, 1960.

Stain-Aid—This for remover of stains from dishes, pots, and pans. Filed April 11, 1960 by Lewis Research Laboratories, Inc., Englewood, N. J. Claims use since Feb. 1, 1960.

Fun—This for liquid cold water detergent for use in washing woolens and other fabrics as well as synthetic fibers. Filed April 26, 1960 by Economics Laboratory, Inc., St. Paul, Minn. Claims use since Feb. 29, 1960.

VisStrip—This for paint and varnish remover. Filed May 6, 1960 by Oakite Products, Inc., New York. Claims use since May 29, 1958.

Rep—This for insecticide for home use. Filed Aug. 6, 1959 by C.R.C. Corp., Baltimore, Md. Claims use since Aug. 1, 1959.

Chemiclave—This for micro-biocide. Filed Sept. 23, 1959 by American Cyanamid Co., New York. Claims use since Sept. 9, 1959.

Prime—This for insecticide. Filed Feb. 1, 1960 by Cook Chemical Co., Kansas City, Mo. Claims use since Dec. 1, 1959.

Tripel—This for cleaning compound in granular form having incidental water-softening properties. Filed May 9, 1960 by Diversey Corp., Chicago. Claims use since Jan. 5, 1960.



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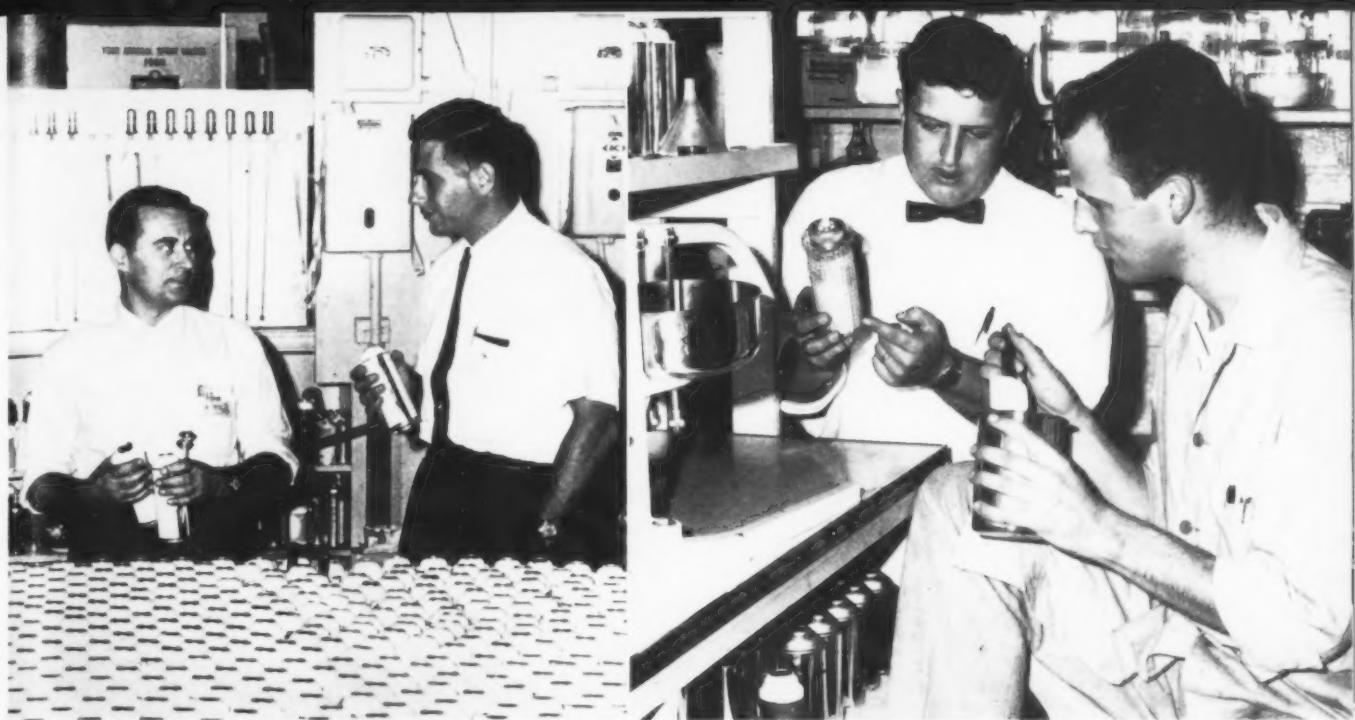
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Paul Blinow (left), assistant plant manager of Puritan Aerosol Corp., Boston, and Harvey White, president and chief executive, inspect aerosol containers prior to filling operation. In past year, this New England custom loader has increased volume by 300 per cent.

Theodore A. Thonet (left), director of research, and Anthony G. Stitt, research chemist, examine special formulation problem that Puritan is in process of solving as part of its customer service program. Research is carried out in a modern, well-equipped laboratory in the Boston plant.

New Faces at Puritan Aerosol

WHAT is the formula for success in the aerosol custom loading field? At Puritan Aerosol Corp., Boston, it is the experience, enthusiasm and vigor of a hand-picked executive management team. Averaging 35 years in age, this six man group is responsible for a 300 per cent increase in volume in the past year.

Only one of the executives were with Puritan a year ago when Harvey White joined the company as president and chief executive. He is Joseph J. Winer, now assistant-to-the-president.

A graduate of Tuck School of business administration at Dartmouth College, Mr. White was a World War II naval officer before becoming assistant to the president of Dover Stamping of Fall River, Mass., manufacturers of galvanized ware. After a period in the textile industry as president of a Boston firm, he purchased Puritan Aerosol Corp.

New faces include two well-known figures in the custom filling field. Theodore A. Thonet, director of research, formerly was with

Continental Filling Corp., Danville, Ill.; and David C. Arndt, in charge of new markets and sales areas, served with the propellants

Harvey White, president of Puritan since November, 1959, heads firm's six-man management team whose average age is 35. One of the most significant changes made by new management team has been the addition of three new filling lines. This gives Puritan four lines to serve its customers better.



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William Heffron supervises production and maintenance of quality control during the actual filling and packaging.



Joseph J. Winer, assistant-to-the-president, personally supervises rush order transferred from warehouse to delivery truck.

marketing group of Union Carbide Chemicals Co., New York. William Heffron is production manager. He was formerly in charge of aerosols for Revlon, Inc., New York, and prior to that had been with G. Barr & Co., Chicago contract fillers. Richard H. Daley, controller, rounds out the group.

Production Facilities

Puritan's growth is responsible for an increase in production facilities to include four filling lines. Two of the lines are relatively new. A third has just been completed for a total of four operating lines. They include:

- A combination cold or pressure line for cosmetics and pharmaceuticals with a capacity of 30,000 units per eight hour shift. Additional equip-

ment includes two insulated 750 gallon stainless steel holding tanks for maintaining temperatures at any desired level for 24 hours, and a 316 stainless steel refrigeration system plus filling equipment and filling heads with tolerances of plus or minus 10 milligrams. A pressure loading system built into this line features a unique way of handling miniature aerosols to eliminate handling with pucks. This line is located in a separate room designed for this purpose.

- A combination cold filling or pressure filling line (built by Kartridg-Pak) with a capacity of 40,000 units per eight hour shift.
- A pressure line (also built by Kartridg-Pak) which features the latest coder of Kiwi Coders Corp. and "Islander" (Island Equipment Co.) unscrambler. The line has a capacity of 57,000 units per eight hour shift.
- A newly completed "short line" designed for test marketing new products or for short runs of one to 6,000 units. Fast set-up and clean-up on this line enables Puritan to offer short runs at low cost.

All four are designed for high-speed production and quality control. Each line is also geared to handle specialized production

David C. Arndt



problems such as precision positioning for containers with small openings.

Puritan's growth has necessitated a new ultra-modern plant located on a six acre tract in the greater Boston area. This plant is expected to be operating in May.

Complete Packaging

To meet increased volume, Puritan employs two full shifts. Storage space is never a problem. An ample portion of the plant's 41,000 square feet is devoted to warehousing. In addition, a public warehouse adjacent to the plant is connected by an indoor ramp.

A rail siding is located in the warehouse to expedite incoming shipments and outgoing shipments to distant points. Five load-

(Turn to Page 211)

Richard H. Daley



You have a working partner in aerosols at General Chemical

How formulating assistance from General Chemical helps contract fillers improve their service to customers

To back you up in your formulating work for your customers, General Chemical makes its extensive technical resources available to you. Our laboratory is one of America's finest . . . completely equipped for new product development, experimental formulating and testing of aerosol products. General's staff of experts includes aerosol specialists in cosmetic, paint, industrial, pharmaceutical, household and other types of products. This laboratory and its skilled staff are available to *help you help your customers* in formulating their aerosol products.

In addition, General Chemical offers these comprehensive services to help you strengthen your position as an aerosol specialist:

Product information bulletins—To help you evaluate formulations and product performance for your

customers, General Chemical has compiled data sheets on a large number of new formulations as well as many familiar products developed and studied in its laboratory.

Sales presentations—General Chemical can help you gain new business by assisting with your sales presentations to prospective aerosol marketers.

Marketing consultations—General Chemical experts will be glad to assist and advise you on marketing and promotion.

These helpful services are available to contract fillers *free* from General Chemical . . . producer of Genetron® aerosol propellants. The "Genetron" line includes standard propellants and special blends for virtually every type of aerosol product. For full information about how you can take advantage of General's free services, phone or write the General Chemical office nearest you.

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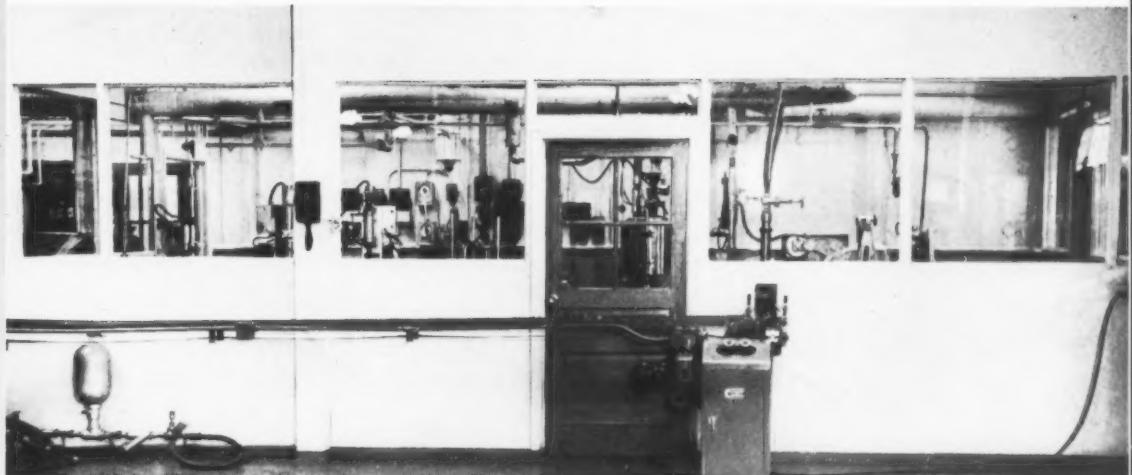


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aerosol filling specialists. Our many contributions to the technology of aerosol filling have kept us in the forefront of this rapidly growing industry.

Among the interesting developments we have helped to pioneer is the use of hydrocarbon propellants. Their use has greatly widened the range of products to which aerosol dispensing is applicable. Our main plant includes an aerosol line housed in an

explosion-proof building, designed and constructed especially for butane-propane aerosol filling. Every precaution for safety is taken, and methods are the most efficient known to the industry.

Send for further information regarding FLUID'S facilities for serving you. Write or phone Fluid Chemical Company, Inc., 876 Mt. Prospect Ave., Newark, N. J.—HUMBOLDT 4-1000.

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*Patent applied for. **Single-shell overcaps available from a choice of manufacturers, who produce caps especially designed to fit Canco's "SNAP-LOCK" Pressure Cans.

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pressure packaging

New Sun-Lac Plant

A new aerosol loading plant, located at 195 Terminal Ave., Clark, N. J., was opened recently by Sun-Lac, Inc., custom fillers. The one-story building provides triple the warehouse space of the firm's former plant.

J. loading capacity of expected to exceed 15 per eight hour shift, says D. J. Rubenfeld,

... to achieve this, six filling lines will be used, with three of the lines adaptable for short production runs. The three larger lines each have its own formulating room, eliminating the possibility of product contamination. This insures more accurate quality control. All formulating tanks, will have a combined capacity of more than 25,000 gallons, and auxiliary equipment are of stainless steel.

Plant design permits a continuous flow of materials from one side of the 32,000 square foot building to the other, without interrupting the production cycle. After delivery, raw materials pass to the blending, filling, warehouse and shipping areas in sequence.

New Sun-Lac, Inc., aerosol custom loading plant, located at 195 Terminal Ave., Clark, N. J. The one-story building provides more than triple the warehouse space of the firm's former plant in Newark, N. J., houses six filling lines.

The loading operation is speeded by automatic fillers, cappers and packers.

At present, Sun-Lac plans to concentrate on filling cosmetics, pharmaceuticals, perfumes, colognes, room deodorants and special industrial products.



David Benjamin

Benjamin ATI Vice-Pres.

David Benjamin has been appointed a vice-president of Aerosol Techniques, Inc., Bridgeport, Conn., it was announced recently by H. R. Shepherd, president. Mr. Benjamin, formerly assistant to the president, will be in charge of planning and engineering for the aerosol manufacturing company.

He joined the firm in 1957 as director of purchasing.

Mr. Benjamin was previously associated with Becker & Becker, management consultants; and Apex Package Consolidators, of which he was president.

Aerosol Output in 1960

Production of non-food aerosol products in the United States and Canada is expected to reach 700 million units in 1960, according to a recent statement by the Aerosol Division of the Chemical Specialties Manufacturers Association, New York. In market value this represents more than \$750 million, approximately 97 per cent of which is accounted for by the U. S. Aerosol production has increased by more than 20 per cent annually over the past five years.

Among the aerosol products enjoying accelerated acceptance by consumers are paints; colognes and perfumes; pharmaceuticals; and certain specialty items such as home permanent wave, spray starch, and windshield de-icing spray. Such well established aerosol product types as hair sprays, shaving creams, insecticides, and room deodorants continue as the largest



selling pressure-packaged products.

The six-ounce aerosol container is still the most popular, according to the CSMA Aerosol Division, while the 16-ounce economy size is gaining each year and now accounts for more than 25 per cent of total production.

Thomasson & Krylon Merge

Thomasson of Pa., Inc. and Krylon, Inc., wholly-owned subsidiaries of L. Thomasson, Inc., have been merged, it was announced recently. The surviving company is Krylon, Inc., Ford & Washington Sts., Norristown, Pa.

No change in ownership, personnel, or operation was involved. The purpose was to achieve internal streamlining of accounting and fiscal procedures, according to a statement by James W. Bampton, president.

du Pont Names Hall

Lawrence P. Hall, Jr., a salesman for E. I. du Pont de Nemours & Co.'s "Freon" products division in the St. Louis area since 1958, has been named to develop the commercial use of "Freon" C-318 propellant in aerosol foods.

"Freon" C-318 is a fluorocarbon compound developed by the firm, and is considered to have special application in the food aerosol field, being odorless, tasteless, chemically stable, and presenting no toxicological problems. A petition for acceptance of the use of this liquefied gas as a propellant

Lawrence P. Hall, Jr.



"Stencil-Kover" obliterating fluid of Reynolds Ink is now in 16-oz. aerosol can.

in food aerosols is currently being studied by the Food and Drug Administration.

Mr. Hall has been with "Freon" products division since joining the company in 1953. His first sales assignment was as a representative in the New England area. From 1955 to 1958 he was technical assistant, first in the technical sales section and later in the aerosol sales section in Wilmington, Del.

Reynolds Has New Can

Reynolds Ink Inc., Cleveland, O., is now packaging "Stencil-Kover," a specially formulated, waterproof, obliterating fluid, in a new 16 ounce aerosol container, which replaces the 12 ounce can formerly used.

"Stencil-Kover" is used to cover over old stenciling, labels and other printing. It is said to dry instantly and to permit restenciling.

Price for the larger size, in single can, case lots, and also quantity discounts remain unchanged from the 12 ounce price. For folder and other information, write Rey-

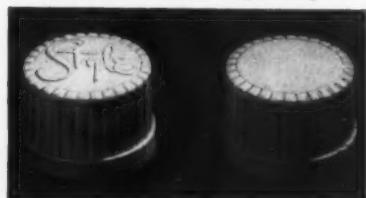
nolds Ink, Inc., 2075 East 65th Street, Cleveland 3, O.

New Aerosol Overcap

Sunbeam Plastics Corp., Evansville, Ind. has just added a new polypropylene aerosol overcap to its proprietary cap line.

The large, smooth, domed top provides ample pricing area, added valve clearance, and is said to eliminate "dishing," frequently found in flat top cans. It is tapered from top to bottom to prevent "nesting" of one cap top into the bottom of another, giving rise to jamming of unscrambling equipment. Fluted vertical ribs extend over the top, ending at a circular groove framing the domed center section, which is a removable in-

New "Jumbo" size plastic aerosol overcap of Sunbeam Plastics Corp., Evansville, Ind., features raised center section that can be decorated by hot stamping, silk screen or painting.



contract filling / private label guide

IMAGINATION • CREATION • REALIZATION

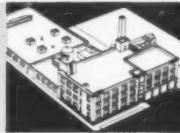


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FULTON 1-7500

sert. The insert is designed to make possible individualized brand name or product identification in the center section, at a lower cost than a complete mold. The wide shoulder at the bottom of the cap is intended to prevent its being pushed too far on the can, with the attendant hazard of accidental valve discharge.

Stocked in black or white, the cap is also available in a wide range of colors. For complete information write Sunbeam Plastics Corp., 7401 Indianapolis Road, Evansville, Ind.

— ★ —

New Aerosol Rust Loosener

A free trial aerosol can of a new lubricant for freeing tight, rusted or seized parts was announced recently by Whitmore Manufacturing Co., Cleveland 4, O.

"Mechanic's Thread Loosener (Easy-Spray)," packaged in a 16-ounce aerosol container, is a non-gumming lubricant that is designed to penetrate rust and corrosion.



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du Pont Moves Office

The eastern district sales office of E. I. du Pont de Nemours & Company's "Freon" products division recently moved to new quarters at 160 Halsted Road, East Orange, N. J.

Purpose of the move, involving 18 people, was to obtain larger and more modern office space in a location that is reached easily by automobile, stated Charles Wirth III, manager.

The "Freon" eastern district, which handles sales on the eastern seaboard from Maine to Florida, had shared offices with another du Pont sales group at 40 Worth St., New York.

Do It Yourself Line

Kartridge Pak Co., Mount Prospect, Ill., recently introduced, a small aerosol packaging line.



"G-63," a new, fast-acting aerosol spray for burns, was introduced recently by General Scientific Equipment Co., Philadelphia. Packaged in an eight-ounce can, the product coats the skin with a protective film which is claimed to reduce swelling and guard against secondary infection through the use of hexachlorophene. Product is filled by Thomasson of Pa., Inc., Norristown. Valves are by Precision Valve Corp., Yonkers, N. Y.

The new compact line, with a claimed capacity of more than 400,000 units annually, can be installed together with necessary auxiliary equipment for less than \$6,000, the company states.

The unit consists of a concentrate filler, crimper for standard and one inch valve, and propellant pressure filler with accumulator and propellant handling pump, mounted on a stainless steel table 36 inches by six feet.



aerosol patents

No. 2,966,283. Spray Device, patented by Samuel Darvie, New York, assignor to Metal Fabrications, Inc., Waterbury, Conn. In a spray device of the type having an elongated casing with gaseous contents therein under pressure and with a spring-loaded valve stem at one end movable between a depressed open position and a raised closed position, said stem having a discharge aperture therein, the patent covers the combination of an elongated container member housing said casing and stem, said container member having opposite end portions flanking a lateral wall, a vertically movable discharge member of rigid material in the upper part of said container member and having a recessed portion into which said stem extends, said discharge member being operatively movable between two limiting positions and being wholly disposed within said container member in both of said positions, said discharge aperture of the stem being in communication with said recessed portion, said recessed portion having a rigid stop portion in engagement with said stem, a discharge nozzle connected to said discharge member and in communication with said recessed portion, said nozzle being independent of and in spaced relation to said stop portion, a vertically elongated apertured portion in the lateral wall of said container member, said nozzle being disposed in registry with said elongated apertured portion and within the confines of said container member, and an open portion in the upper end portion of the container member, whereby manual access to the interior of the container member may be had therethrough for operatively depressing said movable discharge member and thereby operatively depressing said stem.

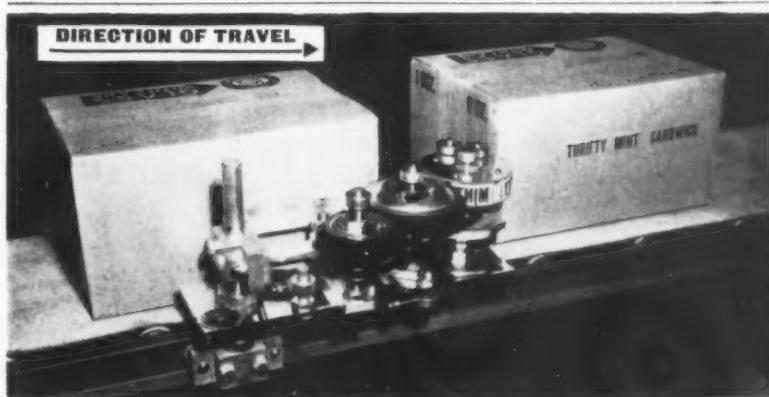
No. 2,964,165. Corrosion Resistant Aerosol Package Containing Hydrolyzable Material, patented by Richard L. Riley, Laurel, Md., assignor to Chempel, Inc., Camden, N.J. The claim covers a pressurized self-dispensing package comprising an iron container having tin on its interior, and a composition therein comprising water, at least one organic material which ordinarily produces corrosion selected from the group consisting of alcohols and halogenated hydrocarbons which ordinarily produce corrosion due to hydrolysis, and an alkali metal salt of an aliphatic hydroxy carboxylic acid having a hydroxy group in the alpha position to the carboxylic group in an amount sufficient to inhibit corrosion by said corrosion causing material.

No. 2,965,270. Dispensing Valve Having Spring of Elastic Material, patented by Jack W. Soffer, St. Louis, and Eugene H. Neupert, Ferguson, Mo., assignors to Development Research, Inc., St. Louis. Described is a dispenser having a valve adapted for gassing by downward displacement of said valve, comprising a circularly-

apertured top wall, a rigid valving spout passing through the apertured top wall and having a valve head and a tubular stem including a cylindrical wall portion ported inwardly of the level at which it passes through the top wall and imperforate at the level at which it passes through said wall, the stem having a shoulder outwardly of said level, together with a resilient tubular valve mount including an upper end portion grasping the stem beneath and abutting its shoulder, a seat portion inwardly of the top wall, a hollow cylindrical bore portion at the level of the top wall and constricted between the edges of the top wall aperture and the imperforate wall stem portion whereby to form a tight seal therebetween, an annular enlargement outwardly adjacent to said level and overhanging the edge of the wall aperture, further including a tube portion outwardly adjacent thereto having a concavity on its inner surface thinning its wall to a thickness less than that of the cylindrical bore portion at the level of the top wall, whereby on depressing the stem inward, the concavely thinned wall portion bows outward to bind the valve mount more securely within the top wall aperture.

No. 2,965,271. Valve Body Incorporating Mounting Cup Mask and Gasket, patented by Jack W. Soffer, St. Louis; Donald M. Kitterman, Kansas City, Kans.; and Lee D. Hart, Kansas City, Mo., assignors to Development Research, Inc., St. Louis. Claimed is the combination including a container having a circular mouth, and a dispensing valve comprising a ductile metal mounting cup having a central aperture and a cup bottom extending radially outward from said aperture at a level below the container mouth and to a distance greater than the inner radius of the container mouth, the mounting cup bottom thence extending upwardly and radially inwardly to form a mounting cup sidewall which conforms to the inner side of the container mouth, such mounting cup sidewall then being rounded outwardly over the container mouth to form a rim thereover, said dispensing valve further comprising an integral valve body sealing member formed of elastic material and including a body portion located within the mounting cup aperture and having its principal part beneath the level of the mounting cup bottom, there being within said principal part a vertical central bore concentric with the central aperture of the mounting cup, the said integral valve body sealing member further including an integral masklike portion extending radially outward from said principal part and tapering thinning upward and hav-

(Turn to Page 201)



NEW KIWI® AUTOMATIC CODE DATER.

Mounts on conveyor line or case sealer.

Uses ink reservoir system. One internal inking with poly squeeze bottle lasts from two to four weeks, or 25,000 to 150,000 impressions, depending upon the amount of printing required.

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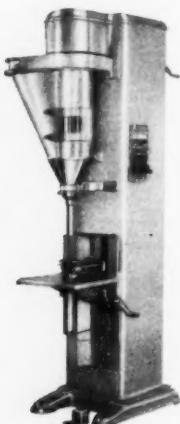
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FMC Auger Filler versatility matches Cal Spray product diversity

California Spray Chemical Corporation, well known producer of agricultural and specialty chemicals, has relied on FMC Auger Fillers for many years to accurately package products which have widely different densities and flow characteristics. Eight automatic and semi-automatic fillers in four Cal Spray plants are used to package such chemicals as wettable DDT, rose dust, bug meal, and tomato dust in bags, cartons, boxes, squeeze containers and cans in sizes ranging from 10 ounces to 6 pounds or more.

Ability to successfully handle such a varied "product mix" is the rule, not the exception, for FMC Auger Fillers. The semi-automatic Model EG-1 shown here comes equipped with four filling methods (cam volumetric, packing, gross weight and volumetric combined with vacuum) for both tight and loose fills. Hence, this one unit handles an almost limitless variety of products and containers . . . perfect for short runs. Many other models, semi-automatic and automatic alike, are available to satisfy unusual requirements for accuracy of fill or type of packing in both rigid and flexible containers at speeds up to 140 units per minute.



For the full story of the FMC line of Auger Fillers, write for your copy of Bulletin P-811.



FOOD MACHINERY AND CHEMICAL CORPORATION
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Production...

EQUIPMENT • MATERIALS • PROCESSING

West's Metering Program

Soap Plant Observer

New Patents

Book Reviews

Bulletins and Equipment

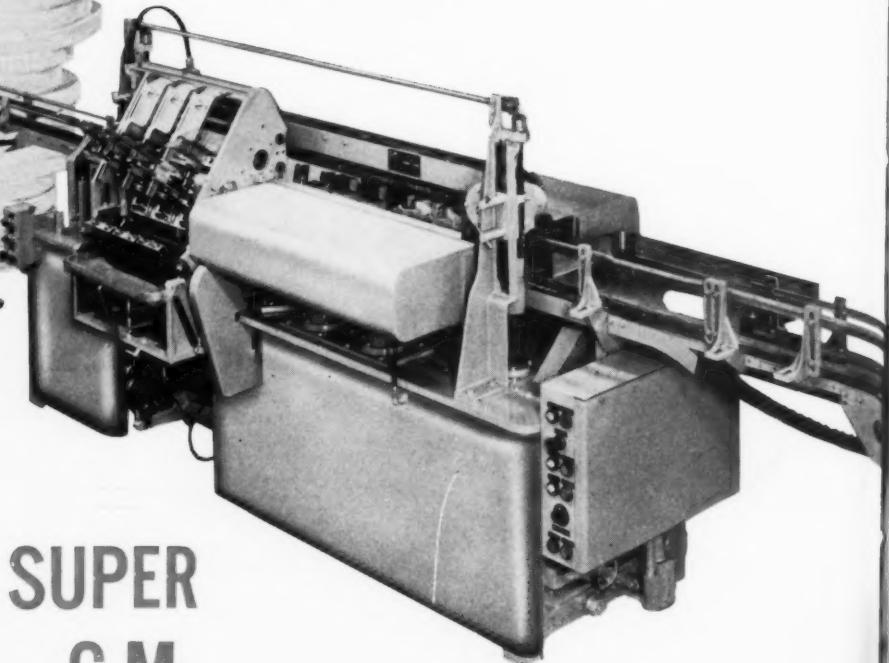
Vertical round dial register meter measures accurate quantities of chemicals in processing of household and industrial chemical specialties at plant of West Chemical Products, Inc., Long Island City, N. Y. Details on West metering program are reported on in story on page 181.





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CAPABLE OF . . . 1. Applying 2-3 even 4 labels simultaneously 2. Doing it at speeds of up to 320 bottles per minute 3. Running any size or shape of container that can be labeled by machine 4. Applying labels from the center to reduce the effect of off standard containers 5. Applying odd shaped labels at needed production speeds 6. Applying tear-type labels for premium promotions, or what have you 7. Handling plastic or glass

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PRODUCTION section

West's Metering Program

A MODERN metering program has been adopted by West Chemical Products, Inc., Long Island City, N. Y., to facilitate close quality control for the firm's extensive line of chemical specialties. In view of the new labeling laws pertaining to household chemical specialties, accurate formulation is of ever growing importance in this field.

West makes a wide range of household and industrial cleaning compounds, sanitizers, germicides and maintenance products. These include among others "Westpine," a pine oil cleaner/sanitizer and iodophor based products such as "CN-Plus." West's "Tamed Iodine"

Corrosion proof, automatic metering system ensures accuracy and uniformity of product formulation, speeds production, saves labor at West Chemical Products.

iodophors are formulated from a surfactant-iodine complex. The surface active agent used is of the nonionic type. Many of the raw materials for these specialties are corrosive to pipes, valves and other equipment prior to being processed and compounded. Corrosive changes in meters and ancillary devices are a hazard to compounding accuracy as well as to the service life of the installation. To meet this problem, West installed one

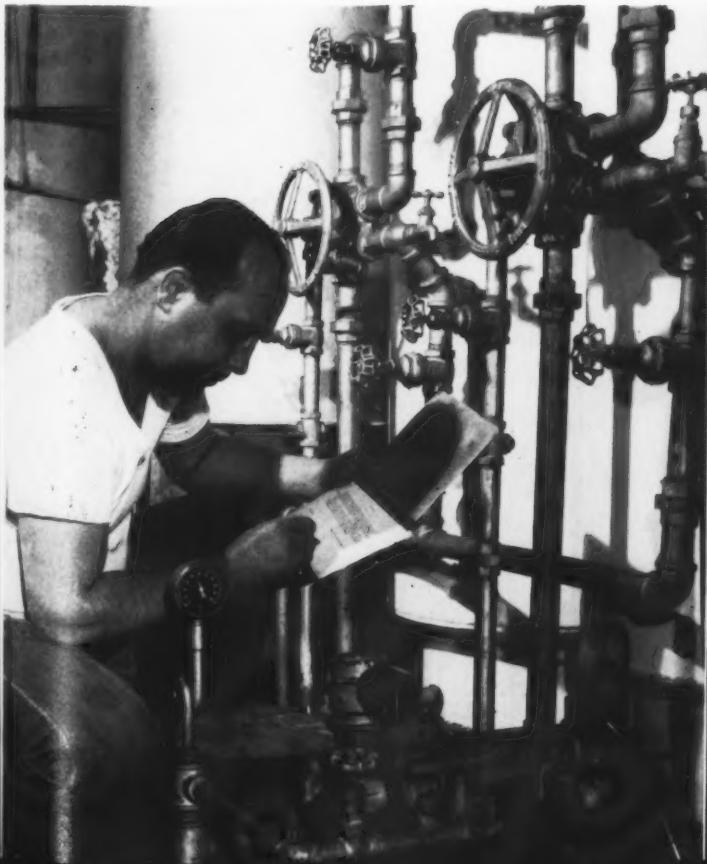
and one half inch stainless steel "Auto-Switch" meters by Neptune Meter Co., New York. These provide automatic controlled measurement of predetermined quantities of liquid ingredients. By pressing buttons on the register face the operator presets the necessary quantity, then pushes a switch to start a pump. Liquid flows until preset volume is reached when the pump is automatically stopped.

Before these meters were in-

Measuring water volume with "Trident" meter at West Chemical Products, Inc. plant in Long Island City, N. Y. A carefully determined amount of chlorine is added to the water in a continuous proportioning process.

Stainless steel meters automatically measure quantities of cor-

rosive raw materials used in manufacture of iodine compounds for disinfectants and germicides at West plant. By pressing buttons on face of meter, operator can preset quantity desired, then pushes a switch to start a pump. When preset quantity is reached, the Neptune "Auto-Switch" cuts off flow by stopping pump.



RESULTS speak LOUD and CLEAR!

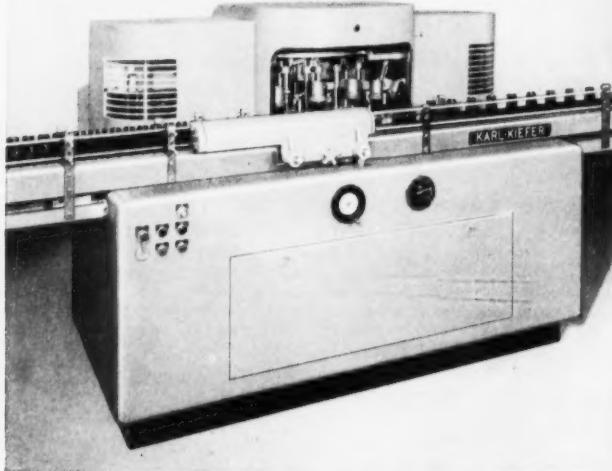
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Measure the propellant gas with deftness and precision. SPEEDS unlimited—built in a span of sizes.

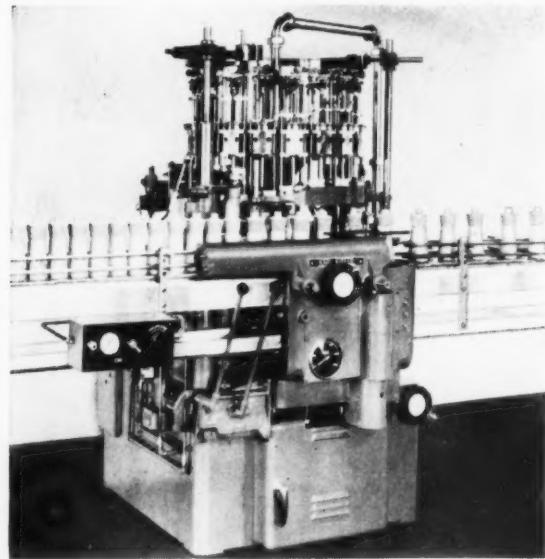
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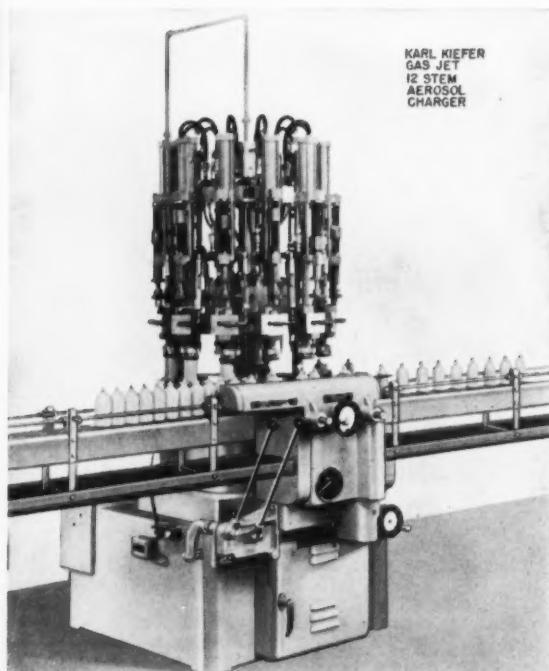
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SOAP and CHEMICAL SPECIALTIES

stalled, kettle lids had to be opened and agitation stopped to permit the operator to use a measuring stick to determine quantity. Samples were taken and if laboratory tests showed an imbalance in the formulation, appropriate additions were made to correct the deviation. Installation of the metering system has realized economies in time, improved accuracy, and created better safety practices, according to West.

Installation of additional metering devices is scheduled by West for the proportioning and processing of its line of soaps and polishes. Not only is close accuracy required by the new labeling laws governing the sale and distribution of chemical specialties in this class, Government contracts also demand tight adherence to specifications as a prerequisite of purchase. Accurate proportioning of batches takes care of this.

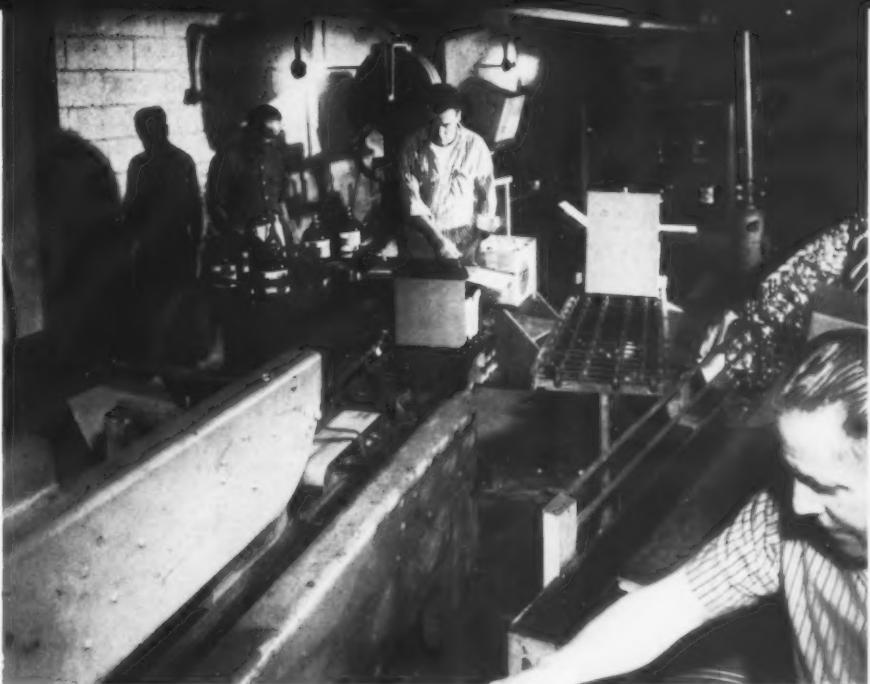
Another sphere, where West is adding to its use of meters is the control of water for processing. Neptune's "Trident" copper meters are employed to measure flow of softened water used in certain products. After every 80,000 gallons, the system is back flushed, detergents added, and filters cleaned.

Water chlorination is another operation where West relies on "Trident" meters. For every million gallons of water a precisely controlled amount of chlorine is added.

The need to increase production rates, solve corrosion problems, and achieve highest possible accuracy in formulation have motivated West to adopt this extensive metering program. ■

U.S.I. Issues Caustic Data

Practical information on caustic soda is supplied in a new 40-page illustrated booklet just published by U. S. Industrial Chemicals Co., 99 Park Ave., New York 16. Chemical and physical properties are covered in text, graphs and tables. A special section is devoted to a method for determining cost of caustic shipments. Shipping and handling in-



Packaging disinfectant products at plant of West Chemical Products, Inc., in Long Island City, N. Y. An extensive metering program has resulted in high accuracy quality control of West products.

formation is included. Safety and first aid are extensively covered.

Methods of analysis, bibliography, and index are appended.

Moisturizing, Thickening Agents

By Marvin S. Antelman

Consultant
Providence, R. I.

SELECTED thixotropic materials, many of them commonly incorporated in chemical specialties, were compared for their relative moisture retention ability and gelling power. Information derived from this study may be of value to the formulator.

Thixotropic agents chosen for comparison included polyethylene oxide ("Polyox WSR-301", Union Carbide Chemicals Co.); gelatin; a distilled monoglyceride ("Myverol", Distillation Products Industries); and other materials in the following categories: Polysaccharides; inorganic materials; and commercially available polyvinyl. Specific compounds tested in these groups were:

Polysaccharides:

1. Potato starch
2. Polymannose-polygalactose mixture ("Burtonite V-7",

Burtonite Chemical Co., Nutley, N.J.)

3. Sodium carboxymethylcellulose ("Carbose D", Wyanotte Chemicals Corp.)
4. Algin
5. Alginic acid
6. Sodium alginate
7. Furcellaran extract ("Uni-Gum", T. M. Duche & Sons, Inc.)
8. Chitin
9. Methylcellulose 100 cps ("Methocel", Dow Chemical Co.)

Inorganic materials:

1. Colloidal silica ("Santocel" series, Monsanto Chemical Co.)
2. Magnesium montmorillonite ("Ben-A-Gel", National Lead Co.)

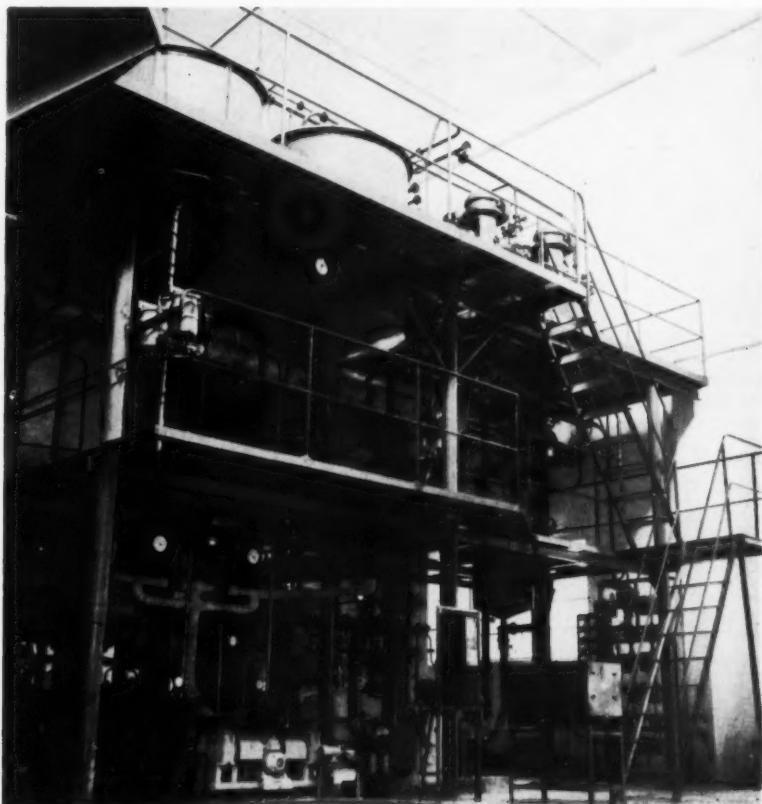
Commercial polyvinyls:

1. "Elvanol 72-51" (E. I. du

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Continuous and Automatic Saponification Plant For Fatty Acids.

Production capacities ranging between 500 and 6,000 Kilograms per hour



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Characteristics:

Automatic control of free caustic in soap with an accuracy of $\pm 0.01\%$

Very accurate control of the sodium chloride content in soap from zero to any required value

Maximum percentage of unsaponified saponifiable matter 0.05 %

Utilities required for 1,000 Kgs. of soap 62 — 63 % fatty acids:

Steam at 2-3 Kgs. sq. cm. : 65-70 Kgs.

Electricity : 10-12 KWh.

Labor : 1 man.

OUR MANUFACTURING PROGRAM INCLUDES:

Plants for Cooling and Drying all types of soap

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Pont de Nemours & Co.)
 2. "Carbopol 934" (B. F. Goodrich Chemical Co.)
 3. Polyvinylpyrrolidone

Comments

Results are listed in tables I, II, and III. It should be remembered that tests were run in distilled water. No direct application of these data should be made to aqueous solutions with different pH values or to tap water containing mineral impurities.

For example, it would be fallacious to conclude that "Carbopol 934" is generally inferior to other thixotropes, since this material performs best in an alkaline pH range.

Table I. Materials which gel water

(1. g. solids: 49 g. H₂O) completely

- "Bartonite V-7"
- Furcellaran extract
- "Carbopol 934"
- Sodium carboxymethylcellulose
- "Polyox WSR-301"
- Agar agar
- Algin
- Sodium alginate
- Gelatin

Table II. Materials which partially gel water

- "Santocel C"
- "Santocel 54"
- "Santocel FRC"
- Chitin
- "Ben-A-Gel"
- "Methocel" 100 cps
- "Elvanol 72-51"

Table III. % Water retained by mixtures of thixotropes with water (2% solid) after 100% water has evaporated from controls

Thixotrope	% Moisture Retained
"Elvanol 72-51"	49.0
Gelatin	43.8
Distilled monoglyceride ("Myverol")	41.0
Alginic Acid	38.0
"Santocel 54"	37.8
PVP	36.9
"Burtonite V-7-E"	36.8
"Methocel"	36.5
Starch	36.0
"Santocel C"	35.0
Algin	31.7
Sodium alginate	31.0
"Santocel FRC"	31.0
"Polyox WSR-301"	28.5
"Ben-A-Gel"	27.0
"Carbose D"	27.0
Agar Agar	25.7

"Burtonite V-7"	25.5
Furcellaran extract	25.0
Chitin	14.5
"Carbopol 934"	2.0

New Carton Closer

Boxboard and Folding Carton division of Continental Can Co., New York, is now marketing, under lease terms, "King Tut," a high speed, low cost machine for erecting and closing several styles of end-opening cartons in a horizontal position.

The "King Tut" line forms cartons ranging in standard sizes from $\frac{1}{2}'' \times \frac{1}{2}'' \times 3''$ to $12'' \times 4'' \times 12''$. Operating on a new mechanical principle, the machine is said to be easily adjustable by the operator, with no mechanical timing or maintenance problems requiring a skilled mechanic. A unique chain drive incorporates all moving parts for feeding, forming and closing cartons. The machine operates on 110 volt, 60 cycle, single-phase electric current.

A hydraulic "vari-drive" provides the driving power and allows the operator to control speed (up to 90 cartons per minute). The driving arrangement, the company claims, eliminates braking "drift" commonly experienced with direct electrical drives or sliding pulleys and provides

New "King Tut," high speed, low cost machine for erecting, closing cartons.

full safety against machine damage and personal hazard.

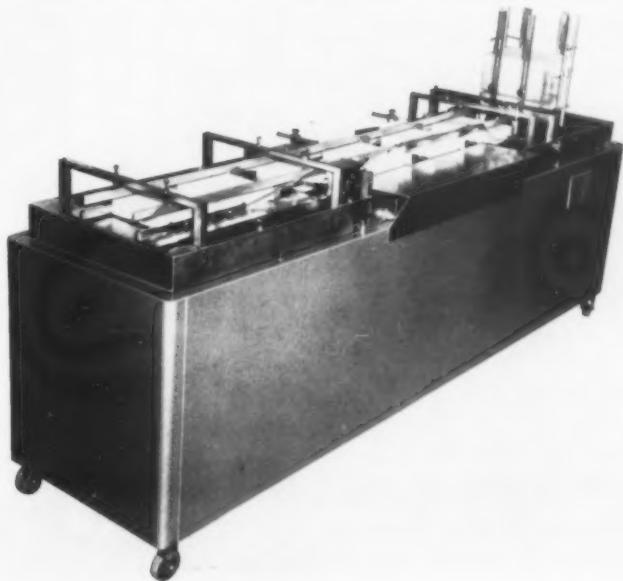
Various models will erect the cartons and close one end only or pass it thru a manual filling station and then close both ends of the filled carton by locking, gluing or both. Length of the machine varies from five feet for the basic model, to 10 feet for those supplying filled, finished packages. Change-over time from one carton size to another is approximately 30 minutes and is accomplished by the operator without need of a mechanic, the maker claims. Standard commercial coding or product identification devices can be attached to all models.

National's Portable Filler

National Instrument Co., Baltimore, issued recently an illustrated catalog listing the various models of its portable liquid fillers.

Filamatic fillers have capacities of from a single drop to 1000cc per stroke for free-flowing, viscous or foaming liquids. They can be used in a wide variety of applications: packaging drugs, cosmetics, adhesives, oils, etc.

Methods are described in the new bulletin for attaching a portable Filamatic to an in-plant conveyor for automatic operation.



LOOK TO  FOR EVERY LIQUID FILLING NEED



Most Versatile Multiple Filler

MODEL B-49 STRAIGHTLINE VACUUM FILLER. For liquids and semi-liquids. Fills 4 to 9 containers simultaneously; up to 50 small containers p.m. Lever engages and disengages filling stems, otherwise operation is automatic. Adjustable for all container heights up to 14"; miniature and standard bottle finishes, gallon F-style cans, wide mouth jars. Stainless steel is standard; plastic for filling special solutions on order. Discharge conveyor optional. For details, request "Bulletin B-49."



U. S. SIPHON FILLER. For all liquids, foamy products and products that do not permit agitation. Stainless steel tubes. Glass-lined tank. For all containers. Write for the "Siphon Bulletin."



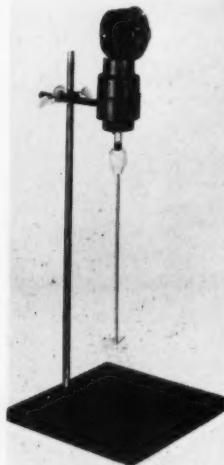
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Propeller — stainless steel, 2"
Shaft — stainless steel, 1/4" diameter
RPM — variable speed motor, 5,000 RPM without load
Motor — 110V, AC, single phase, 60 cycle
Capacity — up to 5 gallons of liquid depending on viscosity
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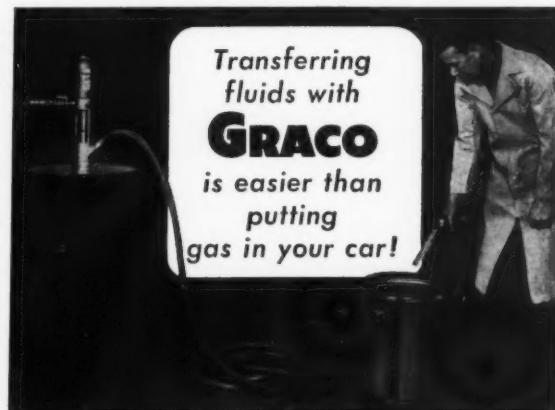
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soap plant observer

By **Willis J. Beach**,
Technical Service Department,
Sugar Beet Products Co.

WHILE most of us realize that usually you get what you pay for, we are not averse to looking around for a bargain once in a while. Some pretty good bargains are available in used equipment and there are a number of recognized and reputable firms that have been dealing in used equipment for many years. The smaller soaper will be well advised to consult the listings of these firms when in need of processing or materials handling equipment.

Most of the trade journals carry classified advertisements and notices of special offerings of used equipment. For many years, the well known used equipment vendors have been keeping us posted on what is available in the "Business Buy/Sell," and the "For Sale" columns in this publication. We can look back on several successful purchases of tanks, agitators, conveyors, and other soap processing equipment offered on these pages.

Buying used equipment from other than the recognized dealers is not without its pitfalls. One firm we know made such a deal last spring and got the worst of the bargain. They purchased, outright, several insulated stainless steel tanks from a large dairy for storage of several chemicals, among them mono- and triethanolamine. An inspection had been made prior to delivery and everything seemed to be in order.

After delivery, the buyer started to pull away some of the insulation that appeared to be cruddy and odorous. At this point, one of the plant engineers inspected one of the partially lagged tanks lying in the yard and noticed several pin holes of light



when he crawled inside. By the time all the insulation was removed from the sides and bottoms of these tanks, it was found that all were suffering from the same condition and that the bottoms of two of them were so weak and pitted as to render the tanks useless.

Used tanks should never be bought as is. Insulation should be removed. Careful inspection should be made from the inside and a check for pin holes with a strong light, especially around welds and fittings. If tanks in a distant location are being considered, it might be well worth an inspection trip by one of the plant engineers or other qualified individual. An outside consultant often fits into such an assignment very handily.

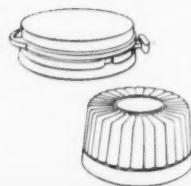
In this instance, further inquiry showed that the tanks had been fabricated during the '30's from a formula that is susceptible to lactic acid attack over a period of time. The engineering department tried spot welding over the pin holes but expansion and contraction of the metal during welding prevented a successful weld.

At this stage, the writer was consulted about a suitable coating to overcome the defects of the pin holes. There are several coatings, including plastics and ceramics, that can be used for protection against a wide variety of chemicals, provided the tank is otherwise structurally sound. An epoxy resin coating was suggested for one of the tanks scheduled for propylene glycol service. After consulting with ethanolamine suppliers, the writer could make no recommendation on a suitable plastic coating to handle mono- and triethanolamine. He suggested that these tanks be epoxy-coated and turned to other service if structurally sound, and that replacements in aluminum or stainless steel, type 304 or better, be made.

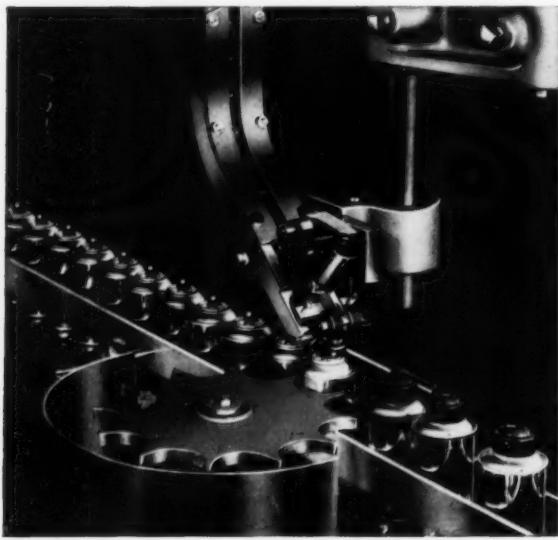
Needless to say, the company was pretty unhappy and suggested that a laboratory project be initiated on a number of coatings advertised to "hold anything." It was proposed to immerse test strips of these coatings in the amines at controlled elevated temperatures as a sort of rapid age test. This procedure did not appeal to us as a sure-fire indication of what might happen in a few years under plant conditions. Nevertheless, several likely epoxies, polyesters, and epoxy-based metalized coatings were tested by immersing test panels in the amines. Only one of these, based on an epoxy coating containing a lead filler, held up for the duration of the tests. However, we did not recommend on the basis of results from such a test that this coating be used in tanks for the storage of ethanolamine.

Immersion tests with correctly prepared panels, while not

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a minute!*



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shoe polish cans and other types of slip-fit
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SOAP and CHEMICAL SPECIALTIES

confirmative in this writer's opinion, are still of merit as indicative devices. This company's engineering department learned a lot about which kinds of coatings *wouldn't* work by applying immersion tests. And the tests served to convince some of the coating salesmen of the reactivity of the ethanolamines.

Salesmen will often offer a company backed guarantee that their coating will hold up under the service required. A little inquiry into the nature of the guarantee usually shows that it amounts to nothing more than an offer to refund the purchase price of the coating. This is little consolation when a full tank of chemical starts to leak after some years of use, or when the chemicals in the tank begin to take on the color of the coating.

Most of us are not too well versed in the various coatings and their compatibilities with some of the more or less obscure chemicals. In most cases one does better to rely for information on the supplier of the chemical rather than the supplier of the coating. Although some coatings manufacturers maintain excellent technical service departments, the supplier of the chemical knows his product best. He is familiar with the properties of his material and is anxious to insure its correct handling by the customer. Some excellent bulletins are available from chemical suppliers on the storage and handling of soap making chemicals, including the ethanolamines.

Pulsating Flow Meters

Since our recent report on flow measurement we have been asked about pulsating flow measurement. The meters described in this column were of the differential head and variable area types. These are not adaptable to measurement or control of pulsating fluid flow resulting in the discharge line of simple piston-type pumps.

In the writer's experience, no universal meter has yet been

developed for measuring pulsating fluid flows over a wide variety of conditions and ranges. A similar conclusion is noted in a useful review article on the subject by P. H. Stirling and Henry Ho, Canadian Industries, Ltd., in the June issue of *Industrial and Engineering Chemistry*. These writers report on some of the limitations of flow meters purported to work on pulsating flow, including ultra-

sonic and thermal types as well as positive displacement and turbine type meters.

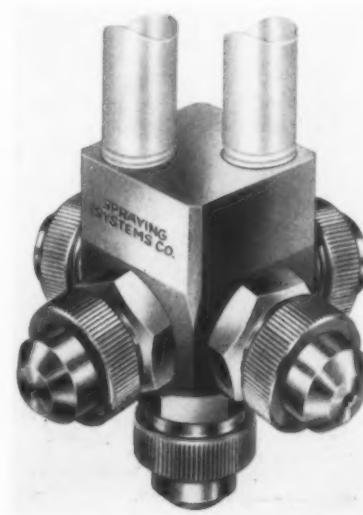
For fluids that will readily conduct an electric current, the flow meters based on an electromagnetic principle are worth considering. Those of Fischer & Porter Co. are claimed to meter to an accuracy of from plus or minus one per cent to plus or minus three per cent of range. Most magnetic flowmeters are essentially of the totalizing type and need density compensating devices in order that mass flow can be read directly. Errors can arise from the compensators and readout devices used to insure a true integrating action.

The possible application of a flowmeter for pulsating flow requires very careful consideration and depends upon the specifications of the individual installation. Those interested must depend upon the suppliers for counsel. The equipment catalogs do not list separately the suppliers of mass flow meters. Some of them are: Rockwell Mfg. Co., Pittsburgh; Control Engineering Corp., Norwood, Mass.; The Foxboro Co., Foxboro, Mass.; General Electric Co., Schenectady, N. Y.; Avien, Inc., Woodside, N. Y.; Decker Corp., Philadelphia; Hays Mfg. Co., Erie, Pa.; G. Kent, Inc., Rome, N. Y.; Potter Instrument Co., Ipswich, Great Neck, N. Y.; Simplex Valve and Meter Co., Lancaster, Pa.; and Revere Corp., Walingford, Conn.

Fast Flow Rate Filter Aid

Johns-Manville Corp., New York, has developed a diatomite filter aid said to have a flow rate nearly double that of previously available filter aid materials.

Called Celite 560, it is claimed to make possible the filtration of extremely viscous materials that could not formerly be filtered with filter aids because of too low a permeability. Extremely useful in the manufacture of plastics, resins and synthetic fibers and films, Celite 560 provides faster flow rates than Johns-Manville's Celite 545.





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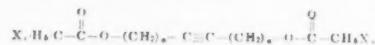
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new patents

Listed below are brief abstracts of recently issued patents. Complete copies may be obtained from the publisher of this magazine:—Mac-Nair-Dorland Co., 254 W. 31st Street, New York 1, N. Y. Remit 50¢ for each copy. For orders received from outside of the United States send \$1.00 per copy.

No. 2,931,754. Method of Controlling Microorganism Growth with Haloacetic Acid Esters of Acetylenic Glycols, patented by Joseph R. Baldridge, Painesville, O., assignor to Diamond Alkali Co., Cleveland. This patent teaches the method of controlling microorganism growth which comprises contacting said microorganisms with a composition containing as an essential active ingredient to compound of the formula:



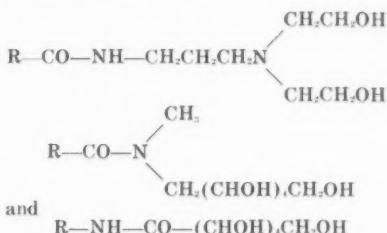
wherein X is halogen, a and a' are numbers from 1 to 3, inclusive; b and b' are numbers from 0 to 2, inclusive and c and c' are numbers from 1 to (3-b) and 1 to (3-b'), respectively.

No. 2,955,086. Method of Producing a Stable Sodium Perbor Silicate Composition, patented by Harlow G. Hyatt, Williamsville, N. Y., assignor to Food Machinery and Chemical Corp., New York. The patent teaches a method of producing a stable, active-oxygen containing, powdered sodium perbor silicate composition, comprising spray-drying a homogeneous free-flowing aqueous solution containing, in the indicated amounts by weight, about 4-8 parts of sodium hydroxide, about 40-50 parts of sodium silicate having a degree Baumé value of 42° and an Na₂O:SiO₂ ratio of about 1:2.5, about 30 parts of borax, and at least about 4 parts of hydrogen peroxide, and in which composition the total Na₂O:SiO₂ ratio is about 1:1 to 1:1.2.

No. 2,956,025. Sulfonate Detergent Compositions with Improved Foam Characteristics, patented by Henry Y. Lew, San Francisco, assignor to California Research Corp., San Francisco. Claimed is a detergent composition consisting essentially, by weight, of 10 to 40% of active organic detergent material and 60 to 90% of water-soluble inorganic salt detergent builders, said organic detergent material consisting essentially, by weight, of about 5 to 50% normal primary

C₁₀-C₁₈ monoalkylbenzene sulfonate, 35 to 90% branched-chain C₉-C₁₈ monoalkyl benzene sulfonate detergent, and 2 to 15% of a normal alcohol selected from the group consisting of C₁₁-C₁₈ saturated primary monohydric alcohols and C₁₁-C₁₂ 1,2-glycols.

No. 2,965,576. Detergent Compositions, patented by Eugene R. Wilson, Whitley Bay, England, assignor to Procter & Gamble Co., Cincinnati. This patent covers a cleansing and detergent composition consisting essentially of a mixture of at least one water-soluble salt of an organic sulfuric reaction product having in its molecular structure an alkyl group of from about 8 to about 18 carbon atoms and a radical selected from the group consisting of sulfonic acid and sulfuric acid, the said salt having pronounced detergent power, and at least one amide selected from the group consisting of:



wherein R-CO is an acyl radical of a fatty acid having about 10 to about 14 carbon atoms and R-NH is an amino radical and R is an alkyl radical having from about 10 to about 14 carbon atoms, the amount by weight of the amide being from about 5% to about 60% of the amount by weight of said water-soluble salt and sufficient to enhance, at temperatures below 100° F., the sudsing properties of said water-soluble salt.

No. 2,961,409. Process for Preparing Detergent Compositions, patented by John Bruce Martin, Wyoming, O., assignor to Procter & Gamble Co., Cincinnati. In the process of producing a heat dried detergent composition containing substantial amounts of sodium tripolyphosphate, the patent covers the step of incorporating a substantially completely anhydrous sodium tripolyphosphate containing from about 90% to 100% of Form II sodium tripolyphosphate and containing no more than 0.1% water, other than water of constitution, in a fluid detergent mixture, containing essentially (a) an organic detergent selected from the group consisting of sodium and potassium salts of higher molecular weight carboxylic acids, water soluble salts of organic sulfuric reaction products having in their molecular structure an alkyl radical containing from about 8 to about 22 carbon atoms and a radical selected from the group consisting of sulfonic acid and sulfuric acid ester radicals, and water soluble nonionic synthetic detergent condensation products of alkylene oxide groups which are hydrophilic in nature with an organic hydrophobic compound selected from the group consisting of aliphatic compounds and alkyl aromatic compounds, the ratio of sodium tripolyphosphate to organic detergent ranging from about 1:1 to 5:1 and (b) more than sufficient water to hydrate the tripolyphosphate added and sufficient to provide and maintain a fluid detergent mixture, whereby 100% hydration of the Form I sodium tripolyphosphate is obtained and the fluid detergent mixture remains fluid.

acid ester radicals, and water soluble nonionic synthetic detergent condensation products of alkylene oxide groups which are hydrophilic in nature with an organic hydrophobic compound selected from the group consisting of aliphatic compounds and alkyl aromatic compounds, the ratio of sodium tripolyphosphate to organic detergent ranging from about 1:1 to 5:1, and (b) more than sufficient water to hydrate the sodium tripolyphosphate added and sufficient to provide and maintain a fluid detergent mixture, whereby the rate of hydration of the Form II sodium tripolyphosphate to the hexahydrate is decreased and the fluid detergent mixture remains fluid.

No. 2,961,410. Process for Preparing Detergent Compositions, patented by John Bruce Martin, Wyoming, O., assignor to Procter & Gamble Co., Cincinnati. In the process of producing a heat dried detergent composition containing substantial amounts of sodium tripolyphosphate and being free from a tendency to be sticky in nature and contain sand-like particles, the steps are claimed of incorporating a substantially completely anhydrous sodium tripolyphosphate containing from about 10% to 100% of Form I sodium tripolyphosphate and containing not more than 0.1% water, other than water of constitution, and insufficient, upon hydration and crystallization of the tripolyphosphate, to promote development of a preponderance of submicroscopic hexahydrate crystals, in a fluid detergent mixture, containing essentially (a) an organic detergent selected from the group consisting of sodium and potassium salts of higher molecular weight carboxylic acids, water soluble salts of organic sulfuric reaction products having in their molecular structure an alkyl radical containing from about 8 to 22 carbon atoms and a radical selected from the group consisting of sulfonic acid and sulfuric acid ester radicals, and water soluble nonionic synthetic detergent condensation products of alkylene oxide groups which are hydrophilic in nature with an organic hydrophobic compound selected from the group consisting of aliphatic compounds and alkyl aromatic compounds, the ratio of sodium tripolyphosphate to organic detergent ranging from about 1:1 to 5:1 and (b) more than sufficient water to hydrate the tripolyphosphate added and sufficient to provide and maintain a fluid detergent mixture, whereby 100% hydration of the Form I sodium tripolyphosphate is obtained and the fluid detergent mixture remains fluid.

No. 2,963,438. Stabilized Soap Composition, patented by Richard C. Harshman, Kenore, N. Y., and Victor C. Fusco, Baltimore, assignors to Olin Mathieson Chemical Corp. Claimed is

(Turn to Page 177)

CHEMICAL USERS' GUIDE

To General Chemical Products for the Soap and Detergent Industry

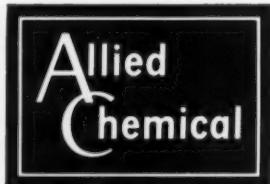
Product	Available Forms	Commercial Strengths	Shipping Containers	Ap
Sulfuric Acid $H_2SO_4 + Water$	Liquid	66° Be (93.2% H_2SO_4) 99% H_2SO_4	Barrels Drums Tank Trucks Tank Cars	Manufactured detergents recovery
Oleum $H_2SO_4 + SO_3$	Liquid	Various 10%-70% free SO_3	Drums Tank Trucks Tank Cars	Manufactured detergents
Sulfan® Stabilized Sulfuric Anhydride	Liquid	99.5% SO_3 min.	55 gal. Steel Drums Tank Cars	Manufactured detergents
Hydrochloric Acid $HCl + Water$ (Muriatic Acid)	Liquid	18°, 20°, 22° Be (27.4% to 34.1% HCl)	Drums Barrels Tank Trucks Tank Cars	Glycerine
Disodium Phosphate, Anhyd. Na_2HPO_4	Powder Flake	48% P_2O_5	Bags Fibre Drums	Builder in synthetic detergents
Trisodium Phosphate $Na_3PO_4 \cdot 12H_2O$ (TSP) (Anhydrous Form Also Available)	Crystal Flake	18.4% P_2O_5	Bags Fibre Drums Bulk Carloads	Soap builder detergents
Tetrasodium Pyrophosphate, Anhyd. $Na_4P_2O_7$ (Pyro)	White Powder	52.1% P_2O_5	Bags Fibre Drums Bulk Carloads	Builder in synthetic detergents
Sodium Tripolyphosphate, Anhydrous $Na_5P_3O_{10}$ (Tripoly)	White Powder	56% P_2O_5	Bags Fibre Drums Bulk Carloads	Builder in synthetic detergents
Sodium Silicate $Na_2O \cdot X(SiO_2) + Water$	Liquid	38° to 60° Be Various ratios of Na_2O to SiO_2	Drums Tank Trucks Tank Cars	Soap builder and filler in synthetic detergents
Sodium Metasilicate, Crystal $Na_2SiO_3 \cdot 5H_2O$	White Granules Powder	29.2% Na_2O	Bags Fibre Drums	Soaps; alkaline detergents
Sodium Metasilicate, Anhyd. Na_2SiO_3	White Granules Powder	50.5% Na_2O	Bags Fibre Drums	Soap builder; alkaline detergents
Sodium Sulfate Na_2SO_4	White Granules	99.5% Na_2SO_4	Bags Bulk Carloads	Extender in synthetic detergents
Aluminum Sulfate $Al_2(SO_4)_3 \cdot 14H_2O$ approx. (Alum)	Commercial & Iron Free: Lump, Ground, Powder	17.25% Al_2O_3	Bags Bulk Carloads	Glycerine purification
Aluminum Chloride, Solution $AlCl_3 + Water$	Liquid	32° Be 50.3% $AlCl_3 \cdot 6H_2O$	Barrels Tank Cars	Glycerine purification
Sodium Bifluoride $NaHF_2$	White Powder	98% $NaHF_2$	Bags Fibre Drums	Souring agent
Sodium Silicofluoride Na_2SiF_6 (Sodium Fluosilicate)	Powder	98% Na_2SiF_6	Bags Fibre Drums	Souring agent

The products advertised are commercial chemicals having various uses, some of which may be covered by patents, and the user must accept full responsibility for compliance therewith.

OTHER PRODUCTS: Sodium Thiosulfate; Sodium Sulfite; Sodium Sulfite, Anhyd.

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	50
	30

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of the fats and wax by careful heating. The lk is then worked into mixture. Silicone oil is prevent tarnishing and to gloss. *Seifen-Oele-Fette*. Nov. 23, 1960, p. 782.

Crystal Inhibitor

new inhibitor of crystal due to cold in edible ole oils was introduced by Beacon Chemical Inc., Cambridge 40, Mass.

Small additions of "Claricel" are said to greatly delay crystal formation and to limit such crystals when eventually formed to "imperceptible" size, eliminating heavy floc. No detection of color, stability, smoke point or flavor occurs, according to Beacon.

"Claricel" ranks as a food additive under the Food and Drug law. For experimental samples contact Beacon.

—★—

Fluorescent Shampoos

A fluorescent shampoo can be formulated in liquid or cream form. Such a product may contain from 10 to 35 per cent of at least one anionic sulfated or sulfonated synthetic organic detergent, preferably a higher fatty acid monoglyceride sulfate plus a higher alkyl sulfate. One tenth of a per cent to one per cent of a substantive colorless organic fluorescent coumarin derivative is added. 4-methyl-7-diethylaminocoumarin in an alcoholic solution is suggested for the purpose. pH of this

product ranges from 4.5 to 6.5.

A clear liquid shampoo incorporates 21 per cent of an ammonium salt of a sulfated coconut fatty acid monoglyceride, 0.2 per cent of 4-methyl-7-diethylaminocoumarin, 9.3 per cent ethanol, 0.4 per cent perfume, and water. pH of this product is approximately 6.2. High foaming power and detergency are claimed for this shampoo, which is said to impart better gloss to the hair than conventional shampoos, due to absorption of the fluorescent dye by the hair. Swiss patent 326,772.

—★—

Trichloromelamine Rinses

Information on the use of trichloromelamine in sanitizing rinses is supplied in a technical bulletin just issued by the chemical products division of Wallace & Tiernan, Inc., 25 Main Street, Belleville, N. J. TCM is an active chlorine compound suggested for incorporation in dry mix sanitizers intended for rinsing glasses in food

handling establishments and application in breweries and dairies. It remains active at elevated temperatures and in the presence of organic matter.

A basic rinse formulation may contain:

	%
Trichloromelamine	22
Monosodium dihydrogen phosphate	68
Alkaryl sulfonate	12

Other builders can be used and the TCM and wetting agent content can be modified according to the intended application. In formulating dry mix sanitizers, however, it should be remembered that while an increased pH raises solubility of TCM, a lower pH steps up its germicidal activity. Formulations on the acid side are advisable for optimum germicidal efficiency.

A chlorine disinfectant formula stipulated by the U. S. Army Quartermaster Corps for food service uses contains citric acid for

(Turn to Page 201)

Insect Repellent Creams

Four different formulations for insect repellent creams are suggested in an article entitled "Glyceryl Monostearate," by E. S.

Lower, published in the Dec. 1960 issue of *Soap, Perfumery and Cosmetics*.

Formula (3) is a mosquito repellent, (4) an anti-midge cream.

	(1)	(2)	(3)	(4)
Glyceryl monostearate (self-emulsifying)	1.6	1.6	11	5
Lanolin	2.4	2.4	—	—
Cetyl alcohol	4.9	4.9	—	—
Liquid paraffin	18.6	18.6	—	—
"Veegum"*	1.6	1.6	—	—
Water	62.6	59.6	65.5	15
Glycerine	5.8	5.8	5	—
Triethanolamine	0.5	0.5	—	—
Hexanetriol 1, 3	2	1	—	—
Hexanetriol	—	—	—	—
Dimethyl phthalate	—	1	—	—
Indalone	—	3	—	50
Cedar leaf oil	—	—	4	—
Oil of pennyroyal	—	—	4	—
Linalyl acetate	—	—	3	—
Petrol	—	—	5	—
Menthol	—	—	0.5	—
Phenol	—	—	2	—
Stearic acid	—	—	—	30

*Tradename of R. T. Vanderbilt Co., New York, for colloidal magnesium aluminum silicate.



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book reviews

Story of the First Fuller Brush Man

SINCERITY, demonstration, and tenacity rather than brainstorming and flashes of brilliance are the cornerstones of successful selling according to Alfred C. Fuller, the Original Fuller Brush Man. The 75 year old founder and chairman of the board of the Fuller Brush Co. gives in his recently published autobiography an appraisal of himself and the one billion dollar company which is his life's work.

By his own testimony, Alfred Fuller was in all his major decisions guided by "a tremendous power somewhere that can lift any person, however mediocre, to great opportunity, affluence and happiness." Whenever he reached a crossroads, in business or private life, he consulted the scriptures for guidance.

Mr. Fuller expresses impatience "with overemphasis on personality inventories, aptitude and intelligence tests, quotients of potential, and all the psychological screens . . ." He does not believe that a college education is necessary for a successful career in business. In his opinion selling is the best school for the future executive.

"I let my customers be my designers," he points out, describing his calls on Hartford housewives, when he first started in business for himself. He listened to his customers' needs and returned to his one man workshop to make the tools to meet their demands.

A searching account is given of the conflict between Alfred Fuller, and his son, Howard, second president of the Fuller Brush Co., the father giving full credit to the son's achievements.

Having become president of the firm in 1943, Howard guided the company through the stormy

period of war time production demands and through the difficult period of readjustment. His was the idea of repackaging the entire Fuller line to comply with modern ideas of hygiene and appearance. In 1958 he added cosmetics to the Fuller line.

It was under Howard Fuller's regime that the Mohawk Brush Co., an Albany, N. Y., hair brush manufacturer, was acquired and built into the specialties arm of the company. Mohawk still supplies high quality brushes to retail stores and all hairbrushes and tufted industrial floor brushes for the Fuller label. It also packages the Fuller Brush Man's assortment of aerosol products and household chemical specialties, manufactures the cosmetics, and processes Fuller's steel mop and broom handles.

Howard Fuller was killed in

an automobile accident in 1959. Third president of the firm is Avard, Alfred's second son. To him, in the father's words, belongs the future.

Generous in giving credit to his associates, Alfred Fuller mentions among others the contribution made by Frank S. Beveridge, who joined Fuller in 1912 and left in 1929 to start Stanley Home Products Co. He instituted the use of college men as summer employees. While earning their schooling these men more than tripled gross sales in a single year. Mr. Beveridge became sales manager of the company in 1919.

The book is not only a fascinating and sometimes thrilling account of the author's personal growth, success and tragedies and of the emergence of the Fuller Brush Co. as we know it today, it is also an engaging piece of living American lore.

A Foot in the Door, by Alfred C. Fuller as told to Hartzell Spence, published Dec. 1960 by McGraw-Hill Book Co., New York, 250 pages, cloth bound, price \$4.50.

Markley Brings Fatty Acids Text Up-to-Date

A SECOND revised and largely rewritten and augmented edition of *Fatty Acids, Their Chemistry, Properties, Production and Uses*, edited by Klare S. Markley, has just got under way with publication of the first of four projected parts. *Fatty Acids*, first edition of which appeared in 1947, is part of a series of monographs on Fats and Oils published by Interscience Publishers, Inc., New York. Concerning the present work the author points out: "Considerable expansion . . . resulted from the more comprehensive treatment of the lower members of the fatty acid series, the hydroxy-, keto-, branched chain, and polycarboxylic acids and their derivatives. The industrial production and utilization of fatty acids, which were only superficially treated in the first edition, are stressed through-

out the present work and also are the subjects of specific chapters."

Dr. Markley was sole author of the former edition. As a result of "the development of certain specializations in the field which have made it impossible for a single author to treat all phases of the subject with equal degree of adequacy," he called in two contributors to part I, of the second edition.

Klare S. Markley, International Cooperation Administration, U.S.A. Operation Mission to Brazil, Rio de Janeiro, wrote Chapters I. Historical and General; II. Nomenclature, Classification and Description of Individual Acids; III. Isomerism.

Robert T. O'Connor, Southern Utilization Research and Development Division, Agricultural Research Service, U. S. Department

of Agriculture, New Orleans, La., authored Chapter IV. X-Ray Diffraction and Polymorphism and Chapter V. Spectral Properties.

W. S. Singleton, also associated with Southern Utilization Research and Development, contributed Chapter VI. Properties of the Liquid State, and VII. Solution Properties.

Each chapter is preceded by an individual table of contents and followed by its list of references. An extensive general subject index

is appended.

Interscience is expecting to publish Part II of *Fatty Acids* in May 1961. It will treat the following subjects: Salts of Fatty Acids; Esters and Esterification; Dehydration, Pyrolysis and Polymerization; Halogenation, Dehalogenation, and Dehydrohalogenation; Hydrogenation; Chemical Oxidation; and Oxidation by Atmospheric Oxygen (Autoxidation).

Fatty Acids: Their Chemistry, Properties, Production and Uses; Sec-

ond Edition, Part I, edited by Klare S. Markley, published Dec. 1960 by Interscience Publishers, Inc., New York, pp. 714, cloth bound, price \$22.50.

Poisons Data for Doctors

A 40-page section on poisons and antidotes is included in the 1961 edition of the *Physicians' Desk Reference to Pharmaceutical Specialties and Biologicals*, an annual published by Medical Economics, Inc., of Oradell, N. J. Claiming to reach 170,000 members of the medical profession, engaged in private practice plus 7,000 hospital pharmacies, PDR is compiled with the cooperation of 213 manufacturers whose products are described in the book.

The poisons and antidotes section includes brief monographs on 50 common chemicals authored by Morton J. Rodman, professor of pharmacology, Rutgers—the State University of New Jersey. Each of these monographs offers suggestions for the emergency management of poisoning by the substance concerned. The monographs are followed by an alphabetically arranged list of representative household products. Chemical contents of each product appear in parenthesis after the tradename. A number opposite each product refers to one of the monographs where the reader finds a brief checklist and guide to antidotal treatment.

If a particular product does not appear in the list the reader is advised to contact the nearest Poison Control Center. These are listed geographically with their respective telephone numbers.

Poisoning by overdoses of drugs or by accidental ingestion of drugs intended for external application, such as iodine or camphorated oils is also treated in the form of brief monographs.

Substances used as antidotes are grouped into drugs "for neutralization, precipitation, and removal of unabsorbed poisons from the gastrointestinal tract; drugs for neutralizing absorbed poisons or antagonizing their effects; and drugs for supportive therapy."



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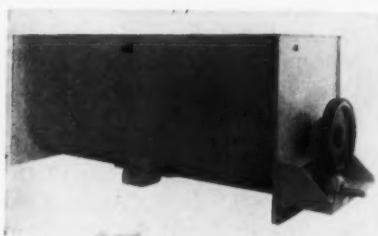
RAPIDS MACHINERY CO.
879-11th St., MARION, IOWA

Please send us the new descriptive catalog.

NAME

ADDRESS

CITY, STATE



Each group is listed alphabetically. A bibliography is appended giving current books which the author believes to be most informative on the subject of accidental poisoning.

The section is concluded by a compilation of manufacturer's educational material. This includes publications and motion pictures dealing with accidental poisoning and overdoses, allergic reactions and other subjects.

New Patents

(From Page 171)

a soap composition consisting essentially of an alkali metal soap of an aliphatic monocarboxylic acid containing from 12 to 18 carbon atoms and as a stabilizer a hydrazide selected from the group consisting of acetic acid hydrazide, sebatic acid dihydrazide, carbonhydrazide, lauric acid hydrazide, myristic acid hydrazide and stearic acid hydrazide in amount from 0.05 to 1 percent by weight, based upon the weight of the soap.

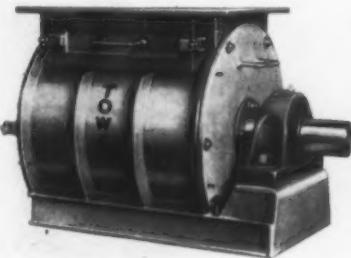
15. A composition according to claim 1 also containing an amount of 2,2'-dihydroxy-3,5,6,3',5',6'-hexachlorodiphenylmethane sufficient to impart bactericidal action to the soap.

★

New Tower Feeder

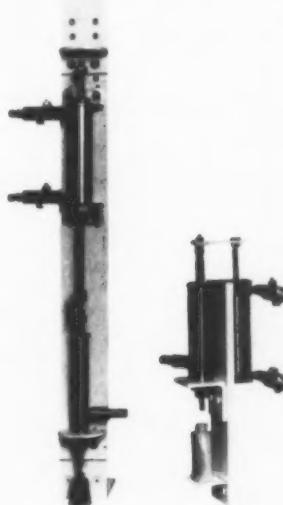
A new series of pre-engineered dry feeders are now available from Tower Iron Works, Providence. Designed primarily for uniform flow of pulverized, powder or granular dry materials, in the chemical, plastic, ceramics, food products, fertilizer or industrial minerals fields; the new feeders feature reinforced machined castings, corrosion resistant linings, and a channel base that takes the motor load off the feeder casing.

Suitable for use as air locks on low pressure differential applications, the feeders can be furnished with or without "Teflon" wiper blades and are available jacketed for heating or cooling.



Versatile Liquid Filler

"Accu-Measure" piston filler, manufactured by Scientific Filter Co., New York, is now available



"Accu-Measure," air operated, volumetric piston filler of Scientific Filter Co., New York, is now available in single assembly units for bench filling (left), or for mounting over intermittently operated chain conveyor (right) for filling of aerosol cans.

in single assembly units for bench filling or mounting over intermittently operated chain conveyor for filling of aerosol cans. Each unit consists of a stainless steel piston assembly combined with an adjustable stroke air cylinder mounted directly above. Liquid volume control is secured by varying the cylinder stroke.

"Accu-Measure" piston filler can be used for filling polyethylene bottles, pressure spray bottles, aerosol cans; also vials, ampoules and irregular shaped containers. Unit fills preset amounts directly from container on floor, bench or nearby overhead point into final containers under total exclusion of air. Ease of cleaning and sterilization is claimed for the filler.

Chlorine Test Kit

Hagan Chemicals and Controls, Inc., Pittsburgh, Pa., is marketing a low-cost test kit which accurately measures the chlorine residual in drinking water or swimming pools.

The kit consists of two re-

agents in 1 ounce and $\frac{1}{2}$ ounce bottles supplied with a marked vial in a pocket-sized plastic box. The quantity of the reagents is said to be sufficient to make 70 tests on water averaging 0.5 parts per million chlorine.

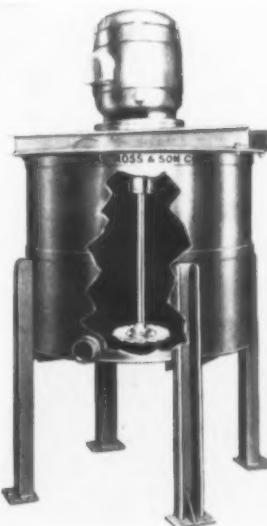
Stability of the reagents guarantees test results accurate to 0.1 part per million of residual chlorine, even after several years have elapsed, the company claims.

New Ross Disperser

New stationary tank type dispersers, ranging in size from five to 3,000 gallons, were introduced recently by Charles Ross & Son Co., 148 Classon Ave., Brooklyn.

The units feature high speed dispersion type impeller of either sawtooth disc type or closed design, multiple action millhead for producing grinds or dispersions. Impeller and shaft are of stainless steel and operate at speeds of up to 5000 RPM. Tremendous impact and shear are developed which are reported to result in quickly mixing and dispersing most paste type products.

Tanks are provided either plain or jacketed, with several optional type outlet gates, and with legs to raise gate to any required height above floor. Additional information and literature is available from the manufacturer.



IF YOUR DETERGENT EMPLOYS
Alkanolamides · Alkyl Aryl Sulfonates · Lauryl Sulfates
 SURFACT-CO CAN LOWER YOUR FORMULATION COSTS

Surfact-Co now supplies
 the detergent industry's basic surfactants
 at the lowest price
 per pound of active ingredient.
 Our detergent scientists
 help you select the right
 surfactant at the right cost
 for your formulation.
 Tech Service includes product development,
 formulation and production assists
 — until the problem is solved.
 What's your application,
 what's the problem?
 Check with Surfact-Co.

**EIGHT
 LEADING SURFACTANTS
 BY SURFACT-CO**

WRITE FOR TECH BULLETIN AND FORMULATION SUGGESTIONS

PRODUCT	USE ASPECTS	APPLICATIONS
DODECYL BENZENE SULFONIC ACID (Surco DDBSA)	Ammonia or diethanolamine neutralization. Dry Soda Ash-Sodium Tripolyphosphate neutralization	Kerosene degreaser and cleaner • Floor cleaner-coupling agent. Low cost car shampoos. Pourable gel concentrate
AMMONIUM NYLON PHENOXYETHYLENE SULFATE (Surco 57)	Auxiliary foamer and detergent in liquid preparations	Dish detergents • car shampoos
DESALTED SODIUM ALKYL ARYL SULFONATE (Surco SF42M)	Contains minimum salt in ethyl alcohol solution	Glass rinses • Liquid dish detergents • General synthetic cleaner • Oven, exhaust fan, deep fry cleaner • Clarifying agent for ammonium alkyl aryl sulfonate solutions
LAURIC DIETHANOLAMIDE (Surco Stabilizer #2)	Standard foam stabilizer and thickener	Low cost shampoos or bubble baths • Liquid dish detergents • Lotion-type shampoo concentrates
COCONUT DIETHANOLAMIDE (Surco Coconut Condensate)	Predominantly non-ionic. Effective with cationics	Base material in high-active floor cleaner concentrates • Glass cleaner and rinse • Thickener
MIXED FATTY ACID DIETHANOLAMIDE CONDENSATE (Surfact-Co MA)	Can formulate without added coupling agent. Hard water resistance • Copious but unstable foam for rinsing ease in suggested formulations	General purpose cleaners • Wax strippers • High viscosity germicidal cleaners • High viscosity synthetic soap cleaners • Lotion-type floor cleaners
LAURYL SULFATES (Surco SLS, Surco AM-LS)	Derived from high lauryl content alcohol. Improved foaming and detergency	Rug and upholstery shampoos • Hair shampoos, clear and lotionized.
SURCO HDL BASE	Can be formulated with large quantities of Tetrapotassium Pyrophosphate for heavy-duty liquid detergents	Laundry detergent • dish detergent

SURFACT-CO

BLUE ISLAND, ILLINOIS

**SURFACTANTS
 SYNTHETIC DETERGENT CONCENTRATES
 DETERGENT SPECIALTIES**

News...

PEOPLE • PRODUCTS • PLANTS

Rosenberger Heads NAMICO

* * *

Robert L. Kob Dies

* * *

Sterwin Advances Hossler

* * *

Pond's Buys Noritex-Warren

George H. Perkin has been appointed manager, general buying department, Procter & Gamble Co., Cincinnati. He is responsible for all P & G buying activities in the United States. Mr. Perkin, formerly manager of chemical and agricultural commodities buying, has been with the firm since 1948.



HAVE YOU A HERCULEAN TASK?

The greatest hero of Greek mythology, Hercules is a name that still provokes an image of rare courage and prodigious strength. Although the requirements of modern living call for a very different concept of problem solving . . . still today's industrialist faces many difficulties that could rightly be termed "Herculean in scope." More often than not these tasks find their solution in the skilled hands and modern laboratories of that 20th century Hercules, the research chemist. In the D&O Industrial Odorants Labs, for example, the perfume technician daily performs feats that in modern context equal that of the famed Greek hero. *Do you have an industrial deodorant or reodorant problem?* Let the D&O Product Development Laboratories relieve you of your Herculean task.

Hercules carries the pillars
of Calpe and Abyla
—Labor of Hercules



Our 162nd Year of Service



Dodge & Olcott Inc.

Manhattan Industrial Center Seventy-Five 9th Avenue New York 11, New York

PERFUME BASES • INDUSTRIAL ODORANTS • ESSENTIAL OILS • AROMATIC CHEMICALS

NEWS

Rosenberger Named Pres.

Lester M. Rosenberger has been named president and general manager of National Milling &



Lester M. Rosenberger

Chemical Co., Philadelphia, it was announced recently. He succeeds Harry Rosenberger, who became chairman of the board. Lester Rosenberger has been associated with the firm since 1925.

His brother Fred, has been named vice-president and secretary of the firm.

— ★ —

Joins Lever Bros. Ltd.

R. T. Forrest has been appointed director of personnel, Lever Bros. Ltd., Toronto, it was announced recently by J. C. Lockwood, president of the firm.

Mr. Forrest, formerly director of management development, Trans-Canada Air Lines, has specialized in personnel and management training work since 1946. He heads all personnel operations at Lever Bros., Ltd., and will be located in Toronto.

— ★ —

P&G Names Perbix

Procter & Gamble Co., Cincinnati, announced recently the appointment of George H. Perbix to the newly created position of manager of the company's general

buying department. He is responsible for all buying activities of P & G in the United States.

Mr. Perbix joined Procter & Gamble in 1949, and has spent the past 11 years in the company's buying operations, including positions as manager of the New York buying office, manager of the buying department fats and oils division and, most recently, as manager of chemical and agricultural commodities buying.

— ★ —

Robert L. Kob Dies

Robert L. Kob, 49, vice-president of the Boyle-Midway division of American Home Products Corp., New York, died Jan. 17, after a heart attack in his office at 260 Madison Ave.

Mr. Kob, with B. T. Babbitt, Inc., New York for six years, was vice-president in charge of contract pack sales, prior to joining Boyle-Midway last May, to head industrial and institutional sales. His earlier associations included 10 years with the institutional division of Standard Brands, Inc., New York. Mr. Kob had been active in the National Sanitary Supply Association.

He is survived by his wife, Eleanore, and a daughter, Stephanie.

Robert L. Kob



Sterwin Appoints Hassler

Edward P. Hassler has been appointed manager of the sanitary chemicals division, Sterwin



Edward P. Hassler

Chemicals, Inc., New York, it was announced recently by William X. Clark, vice-president. Mr. Hassler, formerly an assistant sales manager, is responsible for all activities of the sanitary chemicals division, which markets a line of quaternary ammonium compounds.

He has been associated with Sterling Drug, Inc., Sterwin's parent company, since 1940. Before coming to Sterwin in 1949, as assistant sales manager, Mr. Hassler worked for Winthrop Laboratories, a Sterling division. He is a member of the Chemical Specialties Manufacturers Association, and National Sanitary Supply Association.

— ★ —

"Rise" in Razor Promotion

ASR Products Corp., New York, will use full page advertising in "Life" and large-space newspaper advertisements to offer a "Gem Push-Button" razor and blade dispenser plus a can of "Rise" shave cream for \$1. The cost when bought individually is \$1.79.



DE 61/60

Fatty alcohol sulphates and lauryl ether sulphates more important now than ever!

Use **TEXAPONS!**

Sodium lauryl ether sulphates
Ammonium lauryl ether sulphates
Monoethanolamine lauryl ether sulphates
Triethanolamine lauryl ether sulphates
Magnesium lauryl ether sulphates

outstanding shampoo raw materials
high cleansing and foaming power
easily processed
compatible with the skin
neutral, clinically tested



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Germany Düsseldorf

DISTRIBUTORS IN USA:

Faltek Products Co., Inc. — 165 Broadway — New York 6, N. Y. • A. H. Carnes Co.
— 75 East Wacker Drive — Chicago 1, Ill. • Ben R. Hendrix Trading Co. Inc.
— 409 Cotton Exchange Building — New Orleans 12, La. • R. E. Flatow & Co., Inc.
— 10 Madison Str., P. O. B. 1166 — Oakland 4, Calif.

DISTRIBUTORS IN CANADA:

Canerpa Ltd. — Suite 223, Drummond Building, 1117 St. Catherine Street West
— Montreal • Canerpa Ltd. — 137 Wellington Street West — Toronto • The East
Asian Co., (P. Q.) Ltd. — Marine Building — Vancouver 1, B. C.

Kuseck Joins Davies-Young

Edward J. Kuseck has been appointed sales promotional representative for Davies-Young Soap



Edward J. Kuseck

Co., Dayton, O., it was announced recently by R. H. Gildner, sales manager. He will assist authorized distributors of the "Buckeye" line in western Pennsylvania, northern West Virginia and northwestern Maryland.

— ★ —

Lehn & Fink Ups Dickens

Robert E. Dickens has been named general sales manager, professional division, Lehn & Fink Products Corp., New York, it was announced recently by Walter N. Plaut, president. In his new post, Mr. Dickens reports to M. E. Peck, president of National Laboratories, Inc., Toledo, O., a wholly-owned subsidiary of Lehn & Fink.

Mr. Dickens was formerly

Robert E. Dickens



a sales representative of the division, which distributes disinfectants to hospitals and other institutions. As southeast territory representative since January, 1958, he established a reputation as an outstanding salesman. He has won numerous sales contests within the company, six out of eleven during 1960.

— ★ —

Fels Names Chicago Broker

Fels & Co., Philadelphia, announced recently the appointment of Callerman Co., as Chicago broker for its cleaning products which include: "Instant Fels Naptha," "Gentle Fels Dishwashing Detergent" and "Fels Naptha Cleaner."

Prior to the appointment of Callerman, Fels was represented in the Chicago area directly by the Fels Chicago office, under the supervision of John H. Leonard, central division manager.

— ★ —

D-12 Annual Meeting

The annual meeting of Committee D-12, on Soaps and Other Detergents of the American Society for Testing Materials, will be held March 6-7, at the Park-Sheraton Hotel, New York City.

— ★ —

New List by RMA

The Rubber Manufacturers Association, New York, is preparing a new list of approved cleaners and polishes, for use on rubber and solid vinyl floors. The association has published such lists since 1932. The list now being prepared will be #17, and effective for two years.

Manufacturers of floor cleaners and polishes who wish to be included on list #17 must have had products tested by Jan. 31, 1961. This applies equally to new products, and to products which were included in previous lists issued by the association.

All cleaners and polishes were to be tested by Skinner and Sherman Co., 227 California St., Newton 58, Mass. The fee for each sample tested is \$40.

Drake Receives Trophy

William P. Drake, president of Pennsalt Chemicals Corp., Philadelphia, has been named to the



William P. Drake

1960 roster of Silver Anniversary All-America Award winners, it was announced recently by *Sports Illustrated* magazine.

The awards, which went to 25 leading executives and professional men throughout the nation, honor men who played college football 25 years ago and have since gone on to positions of leadership in business and professional careers.

Mr. Drake was a member of the Bowdoin College, Brunswick, Maine, football team.

— ★ —

Clarence McKay Dies

Clarence E. (Ky) McKay, 63, with Hercules Powder Co., Wilmington, Del., for 41 years,

Clarence E. McKay





New POLYOX water-soluble resins give toiletries that creamy-smooth feel

POLYOX resins add a pleasing lubricity to facial and hand creams . . . brushless shaving creams . . . lotions and other toiletries. In toothpastes, they give a desirable "mouth feel."

You can choose from a wide range of viscosities with POLYOX resins. In three grades, they have molecular weights ranging from several hundred thousand to over six million. Truck-load quantities of POLYOX resins are available *now*—as are samples for laboratory projects and evaluation.

A Technical Representative in the CARBIDE office nearest you can give you more information on POLYOX resins. He can suggest starting formulations, and supply price and shipping information. For a new technical bulletin listing grades, properties, and numerous applications, write Dept. H, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, N.Y.

POLYOX and UNION CARBIDE are registered trade marks.

**UNION CARBIDE
CHEMICALS COMPANY**



died Jan. 26, of a heart attack in Wilmington. At the time of his death, he was sales manager for turpentine in the naval stores department. Prior to this post, Mr. McKay was sales manager of terpene chemicals for eight years. He had been active in the Chemical Specialties Manufacturers Association.

—★—

Stanley Grants Pay Hike

Stanley Home Products Co., Westfield, Mass., has granted a general wage increase of six cents per hour for all eligible, hourly paid employees, it was announced recently by Foster E. Goodrich, president.

An increase to all eligible salaried employees, plus improvements in other benefits, cost of which will be paid by the company, was also announced.

—★—

Vote on P&G Stock Split

The board of directors of Procter & Gamble Co., Cincinnati, has called for a special meeting of its shareholders, to be held March 14th, to consider a two-for-one split in shares of the company's common stock.

Authorization to increase the number of common shares from 25 million with a par value of \$2.00 per share to 50 million shares without par value, and to change each of the present outstanding shares of common stock into two shares of common stock without par value, will be voted on. The board fixed the close of business on Feb. 10, as the record date for shareholders entitled to notice of, and to vote at, the meeting.

The directors also announced their intention, "provided the profits of the company and business conditions justify," that the first quarterly dividend payment on the split shares in May, 1961, will be 35 cents per share. This would represent an increase of approximately 7 3/4% over the quarterly rate of 65 cents per present share.

Pond's Acquires Northam-Warren

CHESEBROUGH-Pond's, Inc., New York, with principal production facilities in Clinton, Conn., and Perth Amboy, N. J., recently acquired the worldwide interests of the 50-year-old Northam Warren organization, Stamford, Conn., which will be operated as a wholly-owned subsidiary.

Northam Warren's major products include those sold under the brand names of "Cutex," "Odo-ro-no," and "Peggy Sage." Chesebrough-Pond's principal lines consist of "Vaseline" brand products, "Pond's" creams and cosmetics, "Prince Matchabelli" perfumes, "Pertussin" cough and cold products, "Aziza" eye cosmetics, and "Seaforth" and "Black Watch" men's toiletries.

In 1955, the then 75-year-old Chesebrough Manufacturing Co. ("Vaseline" petroleum jelly, hair tonics) merged with 109-year-old Pond's Extract Co. (creams, cosmetics, powders). Chesebrough-Pond's acquired Seck & Kade, Inc., makers of "Pertussin" cough

syrup, in 1956. Two years later the cosmetic interests of Vick Chemical Company (including "Prince Matchabelli," "Simone," "Seaforth" and "Black Watch" lines) were acquired, and in 1959 the firm purchased "Aziza" eye cosmetics from Mauvel, Ltd.

Like its parent company, the Northam Warren line is sold principally in drug, variety and food outlets, and distributed in most of the countries of the world. Principal plants are in Stamford, Conn., Montreal, and London. Chesebrough-Pond's overseas business today accounts for approximately half of its net earnings and about 40 per cent of sales. The company has its own overseas manufacturing facilities in Argentina, Australia, Brazil, Canada, Central African Federation, England, India, South Africa, Uruguay and Venezuela. Chesebrough-Pond's licenses manufacturing agents in another 40 countries, and sales distributors in an additional 83 countries.

Principal figures in the recent acquisition of Northam Warren organization by Chesebrough-Pond's Inc. are, left to right: Northam Warren, founder and past president of the Northam Warren interests, Jerome A. Straka, president of Chesebrough-Pond's Inc., and Northam Warren, Jr., president and chief executive officer of the Northam Warren subsidiary, and a vice-president of Chesebrough-Pond's Inc. He succeeded his father, who retired Dec. 31, 1960.



PILOT DETERGENTS

CONCENTRATED QUALITY CUTS COSTS

HD-90

90% Minimum active
dodecyl benzene sodium
sulfonate flake

SP-60

56% Minimum Active
dodecyl benzene sodium
sulfonate paste

ABS-99

96-98% Dodecyl benzene
sulfonic acid

TS-60

60% Triethanolamine
sulfonate liquid

MORE DETERGENT SUDS PER DOLLAR

10% HIGHER CONCENTRATION AT EQUAL COST—That is what these unique, cold-processed sulfonates make immediately available to you. The four products above, as well as the four listed below, offer new possibilities for detergent formulations.

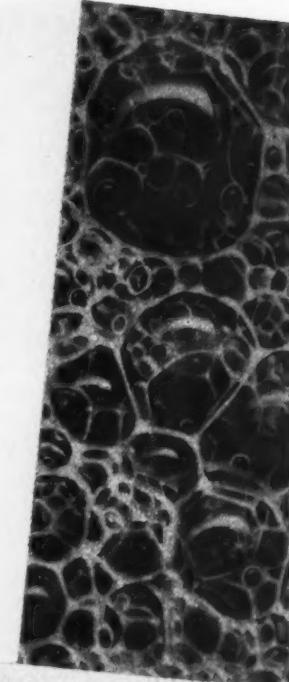
- AEL-60 AMMONIUM NONYL PHENOL TETRA ETHOXY SULFATE
- SEL-60 SODIUM NONYL PHENOL TETRA ETHOXY SULFATE
- KTS-40 POTASSIUM TOLUENE SULFONATE
- SXS-90 SODIUM XYLENE SULFONATE FLAKE

FOR SUPERIOR LIGHT-DUTY LIQUIDS with outstanding cleaning, rinsing, foaming and detergency characteristics select either AEL-60 as the 60% Ammonium Salt, or SEL-60 as the 60% Sodium Salt.

FOR SUPERIOR HEAVY-DUTY AND ALL PURPOSE LIQUIDS with maximum flexibility in your formulation specify either KTS-40 as the 40% Potassium Salt, or SXS-90 as the 90% Sodium Salt of Xylene Sulfonate (dry flake). Both of these Pilot Products act as solubilizers to bind organic sulfonates and alkaline builders in stable, clear detergent solutions.

COLD SULFONATION IS THE DIFFERENCE: Pilot cold processing—conducted at below freezing temperatures—gives uniform combinations, complete reaction, and preserves the optimum surface active structure. As a result, Pilot high organic concentration and low sulfate properties *eliminate filtering*; give liquids the highest sudsing and cleaning powers obtainable.

Samples for your formulation available on request. Write today.



PILOT *Chemical Company*
of California

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- Basic Processors of
- Hydrocarbons for
- Sulfonate Flake
- Sulfonate Liquids
- Sulfonic Concentrates

Publisher Addresses CIBS

Frazer V. Sinclair, publisher of "Drug and Cosmetic Industry" and "Beauty Fashion" magazines was the guest speaker at the January 12th meeting of the Cosmetic Industry Buyers & Suppliers Association held at the Hotel Manhattan, New York.

Mr. Sinclair traced the growth and future outlook for cosmetic sales and also pointed out why not all cosmetic manufacturers have participated in the tremendous sales growth of the last ten years. In addition, he emphasized the importance of cosmetic producers maintaining a close and intimate contact with their suppliers.

—★—

Dow Announces New Line

A complete line of products is being developed for the automotive aftermarket by Dow Chemical Co., Midland, Mich., it was announced recently by D. K. Ballman, vice-president and director of sales.

The trademark "Dowgard," will become the family name for its entire series of automotive products. The first product of the new line will be called "Dowgard Antifreeze," and marketed this fall.

—★—

Calhoun Joins Geigy

Leo K. Calhoun, formerly a member of the sales staff of California Spray Chemicals Corp., Richmond, Calif., recently joined the Alabama sales staff of Geigy

Leo K. Calhoun



At January 12 meeting of Cosmetic Industry Buyers & Suppliers Assn., left to right: CIBS president, Robert C. Ring, Hewitt Soap Co.; Frazier V. Sinclair, guest speaker; CIBS program chairman, Dallas D. Roush, Owens-Illinois Glass Co.; and CIBS luncheon chairman, Walter Morton, Hazel Atlas Glass Division.

Agricultural Chemicals, division of Geigy Chemical Corp., Ardsley, N. Y. He makes his headquarters in Columbus, Ga.

—★—

Perfumers' Symp. Apr. 13

The annual symposium of the American Society of Perfumers, Inc., will be held Thursday, April 13, at the Essex House, Central Park South, New York. The theme of this year's meeting will be "Experimental Findings on Odor and Olfaction."

"Three prominent speakers will deal with psychophysical, physiological and chemical aspects of olfaction and will present experimental evidence recently obtained. The three speakers will be: Dr. Trygge Engen of Brown University, Dr. D. Tucker of Florida State University, and Dr. M. G. Beets of International Flavors and Fragrances, Inc., Hilversum, Holland.

The meeting will be followed by a cocktail hour and buffet supper. Reservations will be accepted by Edwin D. Morgan, Jr., Lever Brothers Research Center, 15 River Road, Edgewater, N. J. Christian Wight, van Ameringen-Haebler division, International Flavors & Fragrances, Inc., New York, is chairman of the symposium.

sium committee which includes Jacques Masson, Flam-Haft Laboratories, Inc., New York; Dr. Paul Laufer, Northam-Warren, a division of Chesebrough-Ponds, Inc., New York, and Alfred Moeller, Noville Essential Oil Co., North Bergen, N. J.

—★—

Roubechez, Inc. Moves

Roubechez, Inc., essential oil firm, formerly located at 8 East 12th St., New York, has moved to 39 Roselle St., Mineola, N. Y., it was announced recently by Frank H. Sloan, president. The move provides room for larger facilities and laboratories. The new phone number is Pi 1-6611.

—★—

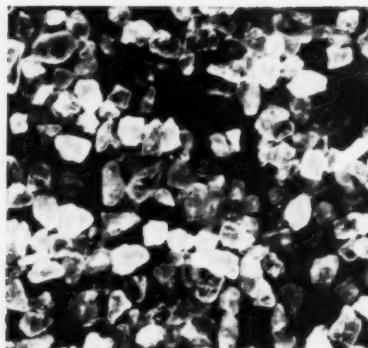
G-R-P Names Sales Mgr.

Gillespie-Rogers-Pyatt Co., 137 year old New York shellac producer, has appointed Paul R. Donovan, Jr., sales manager, it was announced recently by George A. Melvin, vice-president, sales.

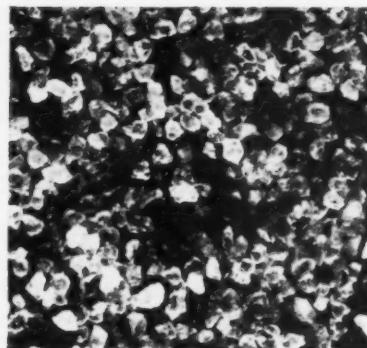
Prior to joining G-R-P in 1958, Mr. Donovan was a member of the coatings sales department, Dow Chemical Co., Midland, Mich. In addition to his duties as sales manager, Mr. Donovan will devote a part of his time to the company's new product development program.



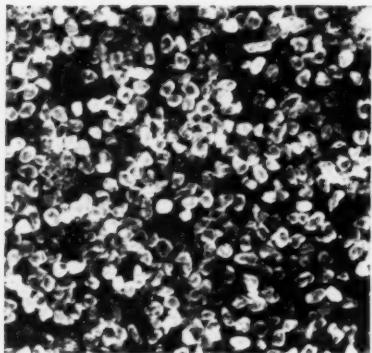
PEA No. 1 Repackage these big sparkling PARADI crystals just as they come from the drum.



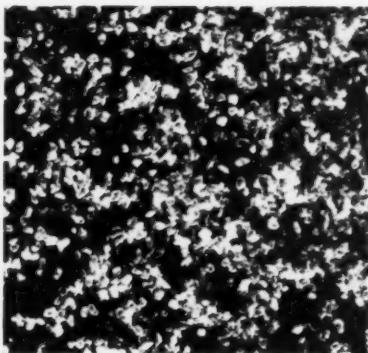
PEA No. 2 A popular size for repackaging in vaporizer cans.



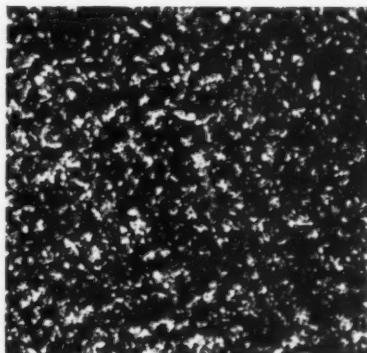
RICE No. 1 Smallest crystals recommended for direct repackaging. Excellent for shaker-top cans.



RICE No. 2 Exceptionally free-flowing, easy packing, for fast refilling of power presses.



RICE No. 3 For foot-operated presses you need a finer crystal like this—free-flowing but small enough to pack and compress easily.



POWDERED Save time in melting and molding with this super-fine fast-melting size.

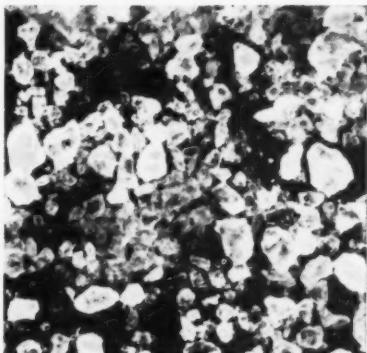
There are 7 ways to order para-DICHLOROBENZENE when you buy Paradi®

The diverse assortment of *para*-dichlorobenzene crystal sizes pictured above is a unique feature of Hooker's Paradi line. Far from being a whimsical advantage, this wide selection simplifies the job of processing or repackaging, thereby keeping costs of such operations to a minimum.

Sparkling white Paradi crystals provide more than a variety of forms alone. Because they are pure *para*-dichlorobenzene, with no *ortho*-, you are assured that

they will vaporize completely, leave no residue, odor, or stain. Paradi crystals make firm, clean blocks and pellets that are as white as snow.

Paradi is furnished promptly in fiber drums of 25, 50, 100 or 200-pound capacities. So that you can see for yourself how these dry, brilliant crystals will enhance the sales appeal of your product, we invite you to write for samples and/or technical data.



GRANULATED This size is used as an agricultural insecticide and herbicide, and as a chemical intermediate.

HOOKER CHEMICAL CORPORATION
102 UNION STREET, NIAGARA FALLS, NEW YORK

Sales offices: Buffalo, Chicago, Detroit, Los Angeles, New York, Niagara Falls, Philadelphia, Tacoma, Worcester, Mass. *In Canada:* Hooker Chemicals Limited, North Vancouver, B.C.

HOOKER
CHEMICALS
PLASTICS

Hogan Joins Washine

The appointment of John F. Hogan to the newly created position of director of commercial



John F. Hogan

development, was announced recently by Washine Chemical Corp., Lodi, N. J. Mr. Hogan will be in charge of market development, market research, product evaluation and the selection and administration of development of new products in terms of their business values and applications.

He was formerly with Century Chemical Corp., New York, where he was director of commercial chemical development in fine chemicals, food additives and industrial chemicals.

Walter Dugan Dies

Walter Dugan, 52, vice-president and general manager of Welch, Holme & Clark Co., New York, succumbed to a heart attack at his home on January 3.

An expert on warehousing and trucking, he was with the firm 25 years; named general manager in November of 1960.

Airkem Appoints Smith

Airkem, Inc., New York maintenance products manufacturer, has appointed Gerard E. Smith as director of sales for the western hemisphere, it was announced recently. Mr. Smith has been sales manager for the United States and Canada since 1956. In his new capacity he will also direct the com-

pany's sales activities in Central and South America.

Mr. Smith joined Airkem in 1946 and rose from salesman to branch manager. In 1950 he was promoted to the position of national manager, Smoke Odor service division. In January 1956 he was appointed sales manager, domestic sales, and in January 1957, Mr. Smith was elected an assistant vice-president.

— ★ —

Draper Allied Vice-Pres.

Neal M. Draper has been appointed vice-president of the National Aniline Division, of Allied Chemical Corp., New York, it was announced recently by James G. Fox, Jr., division president. In his new position, Mr. Draper is responsible for the sales of organic chemicals, dyestuffs and pigments.

Mr. Draper joined Allied Chemical's Solvay Process Division in 1935 as a student salesman in St. Louis. In 1938 he was transferred to Kansas City, where he remained until 1943, when he returned to St. Louis. In 1947 he was promoted to branch manager, St. Louis.

He was transferred to New York in 1951 as product manager ammonium and potassium products, and became assistant director of sales for Solvay Process Division in 1954. In July, 1957, he was promoted to the position of assistant to the president of National Aniline Division.

Neal Draper



CDCAI Elects Officers

The Chicago Drug and Chemical Association, Inc., has elected the following officers:



S. A. Davis

ident, S. A. Davis, president—C. P. Hall Co.; first vice-president, Robert DeLamar, J. H. DeLamar and Sons, Inc.; second vice-president, J. C. Browning, Demert and Dougherty; secretary, Kenneth W. Hartley, Dodge & Olcott, Inc.; treasurer, Walter L. Johnson, Fairmount Glass Works, Inc.

— ★ —

Johnson, Ltd., Ups Vernon

J. Ward Vernon, director of research for S. C. Johnson & Son, Ltd., Frimley Green, Surrey, England, was appointed recently as technical administrator covering Europe, Africa and the Near East for Johnson's Wax International.

— ★ —

25 Year Club Adds Two

Fritzsche Brothers, Inc., New York—Quarter Century Club added two members to its rolls recently. Bill Wilmer, advertising manager, and Katherine Heintz, filing division, were honored at a joint celebration held Jan. 17, in New York.

— ★ —

Fox On Hospital Board

Cyril G. Fox, president and chairman of the board of Fels & Co., Philadelphia soap manufacturers, has been named to the board of directors of the Riddle Memorial Hospital, to be erected near Media, Pa.



Win her approval
perfume your detergent with Givaudan
Tergescents®

Women are always "fragrance-conscious"—a pleasant scent is often the prime factor in her repeat purchases. You can key your household detergents to her preferences with low-cost Givaudan *Tergescents*.

These powerful, appealing fragrances—for liquid or powdered detergents—are especially developed to assure your detergent's success. They will give you outstanding consumer acceptance at very low cost.

Givaudan will be glad to recommend the type of *Tergescent* that is best suited to your product...or we can custom-make a fragrance that exactly fits your specific needs.



GIVAUDAN-DELAWANNA, INC.
321 West 44th Street, New York 36, N. Y.

SOAP and CHEMICAL SPECIALTIES

Two UBS Vice-Presidents

Lloyd H. Perry and John C. Smith were recently appointed vice-presidents of UBS Chemical



Lloyd H. Perry

Co., Cambridge, Mass., a division of A. E. Staley Manufacturing Co., Decatur, Ill.

As technical director since 1958, Dr. Perry has directed research in polymerization, peroxides and rubber compounding. Prior to his association with UBS, Dr. Perry was a teaching fellow and research associate with M. I. T., from 1940 to 1946. He is currently serving as chairman of the northeastern section of the American Chemical Society.

Mr. Smith joined UBS in 1957 as industrial sales manager and was appointed director of marketing and sales in 1960. Prior to joining UBS he was manager, drug trade relations, Pitman-Moore, Indianapolis, Ind., from

John C. Smith



1950 to 1957. He is a member of the Sales Executive Council, Chemical Specialties Manufacturers Association, and Paint & Varnish Association.

— ★ —

FTC Cites Shulton

An order by a Federal Trade Commission hearing examiner announced recently would require Shulton, Inc., Clifton, N. J., manufacturer of toiletry, chemical and pharmaceutical products, to stop making alleged discriminatory promotional payments to favored customers.

This is not a final decision of the Commission and may be appealed, stayed or docketed for review.

Examiner Walter R. Johnson found that Shulton has paid allowances to some customers for advertising or other services but did not make them available to all other competing customers. This discrimination, he held, allegedly violates Section 2 (d) of the Robinson-Patman Amendment to the Clayton Act. Mr. Johnson said that the firm had filed an answer admitting all material allegations in the FTC's complaint of Jan. 5, 1960, waiving a hearing, but reserving its right to submit proposed findings of fact and conclusions of law and any other rights it may have under the Commission's rules.

— ★ —

Helene Curtis To Expand

Helene Curtis Industries, Inc., Chicago, is planning the construction of a 50,000-square-foot addition to its shipping center and warehouse in Franklin Park, Ill. Completion is scheduled for May 1.

— ★ —

Lueders' McKnight Retires

James McKnight, salesman for George Lueders & Co., New York, has retired after 53 years with the company. In addition to New York City, Mr. McKnight, at various periods during his sales career, covered the states of Ohio, Michigan, New York, Pennsylvania and Indiana.

Ruebcke Hostachem Pres.

Guenther I. O. Ruebcke was recently elected president of Hostachem Corp., Mountainside,



Guenther I. O. Ruebcke

N. J. He succeeds H. E. Maurer, who will soon take over a new position in London as managing director of Hoechst Chemicals Ltd.

Hostachem Corp. is the distributor for a wide range of chemicals produced by Farbwerke Hoechst AG. (Germany) and its subsidiaries, as well as Hoechst Chemical Corp., West Warwick, R. I.

— ★ —

Frank Dow Manager

Appointment of Myron Frank as product manager for "Amitrol" products was announced recently by Leo B. Grant, sales manager of the chemicals department, Dow Chemical Co., Midland, Mich. "Amitrol" products constitute a new line of indus-

Myron Frank



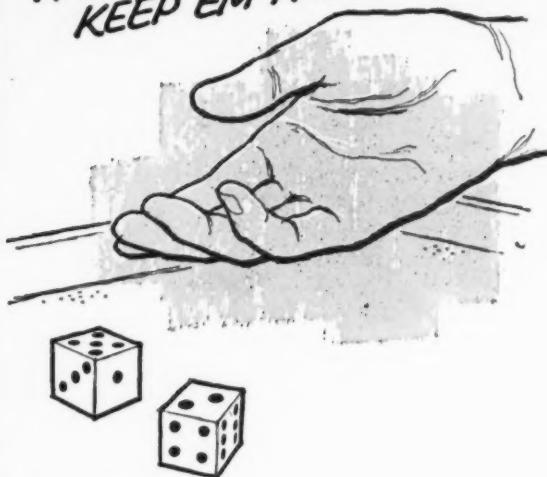
Progress with FATTY ACIDS



**MORE CANDLES
MADE TODAY
THAN 50 YEARS AGO!**

Stearic Acid is an important ingredient of candles. And, strange as it may seem, more candles are made today than 50 years ago. Stearic Acid imparts dripless, non-bending, and better burning characteristics to candles, keeps white candles from yellowing, helps colored candles keep their true shade.

**FATTY ACIDS
KEEP 'EM HONEST!**



What do Fatty Acids have to do with dice? Well — Oleic Acid is an ingredient in compounds for polishing dice. The dice must be perfect cubes and...to keep them that way...they are buffed and polished in a sawdust tumbling compound containing Oleic Acid.

Below are facts you should know about two Fatty Acids produced by A. Gross. Why not write us for samples and additional information on these and other Fatty Acids we produce. Send for the latest edition of the brochure "Fatty Acids in Modern Industry". Address Dept. S-1.

**DISTILLED
STEARIC ACID
GROCO 54
Double Pressed**

Titre	53.9° — 54.5° C.
Titre	129.0° — 129.9° F.
Color 1" Lovibond Red*	0.5 max.
Color 1" Lovibond Yellow*	2.0 max.
Unsaponifiable	
Saponification Value	209 — 212
Acid Value	208 — 211
% F.F.A. as Oleic Acid	
Iodine Value (WIJS)	4.5 — 6.5
Refractive Index 50°C. (Av.)	
*5 1/4" cell for Groco 54	

**DISTILLED
RED OIL
GROCO 4**

... because it's artificial. It comes from an aerosol can and the bulk of it is Stearic Acid. Here is one of thousands of products that depend on Stearic Acid. Others range from hard mint candies to lubricating greases.



**a. gross
& COMPANY**

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Factory: Newark, N.J. • Manufacturers Since 1837

trial coolants, developed for use in stationary engines with large cooling capacities.

Mr. Frank joined Dow in 1951, after receiving a degree in chemical engineering from Purdue University. Following three years in chemical technical service and development, he was advanced to specialty chemicals sales in 1954, and has headed sales of brake fluids and antifreeze since that time.

— ★ — **Toni Names Torrens**

James A. Torrens has been named general sales manager of Toni Co., Chicago, it was announced recently by Stuart K. Hensley, president of Toni, a division of Gillette Co. Mr. Torrens has served as national field sales manager for the past two years. Prior to joining the firm in 1946, he served with General Mills and Armour & Company in Minneapolis.

It was also announced that the company had appointed two men to newly-created posts in its sales division. Robert F. Bryant will serve as assistant general sales manager in charge of sales force and field operations, and William F. Frost as assistant general sales manager for sales development.

Prior to his new assignment, Mr. Bryant was merchandising manager and regional manager. He joined Toni in 1948 as a sales representative covering the Boston territory and has served in several capacities in the sales department.

With the company since 1949, Mr. Frost formerly served as merchandising manager and also held various posts in the sales department.

— ★ — **Ring CIBS President**

At the January 12th meeting of the Cosmetic Industry Buyers & Suppliers Association, Robert C. Ring, Hewitt Soap Co., presided for the first time as president. In a brief speech Mr. Ring paid tribute to the retiring president, Lamson Scovill, Scovill Manufacturing Co. He then introduced the



Winton J. Fowler has been named southeastern sales representative of the nitroparaffins department, Commercial Solvents Corp., New York. He will make his headquarters at 1958 C Monroe Drive, N.E., Atlanta 9, Ga.



Jean Wood recently joined Geigy Industrial Chemicals Division, Geigy Chemical Corp., Ardsley, N. Y. He will be division sales representative in Texas, Louisiana, Oklahoma, Mississippi and Arkansas.

other new officers for 1961: first vice-president, J. William Voit, George Lueders & Co.; second vice-president, Eugene M. Roberts, Lanvin Perfumes, Inc.; corresponding secretary, Frank N. Pond, Dominion Products, Inc.; recording secretary, Horatio R. Rogers, Colgate-Palmolive Co.; and treasurer, Robert J. Roberts, Emery Industries, Inc.

New CIBS officers and directors, seated, left to right, corresponding secretary, Frank N. Pond, Dominion Products, Inc.; president, Robert C. Ring, Hewitt Soap Co.; first vice-president, J. William Voit, George Lueders & Co.; and treasurer, Robert J. Roberts, Emery Industries, Inc. Standing, left to right: publicity and award chairman, Thomas Morgan, MacNair-Dorland Co.; director, H. Robert Miller, White Metal Manufacturing Co.; luncheon chairman, Walter Morton, Hazel Atlas Glass Division; general program chairman, Dallas D. Roush, Owens-Illinois Glass Co.; and golf chairman, Gilbert B. Luce, Plax Corp.



Chemetron Buys Northwest

Northwest Chemical Co., Detroit, Mich., has been purchased by Chemetron Corp., Chicago, it was announced recently. The transaction was a cash deal.

Northwest makes metal cleaners, paint strippers and related chemical specialties. Its operations will now be part of Chemetron's chemical products division.

put

POTASSIUM SILICATE in your formulas!

Kasil potassium silicates are effective detergent builders. If you are revising a formula or working on a new compound, these detergent properties of Kasil potassium silicates are of interest.

- Kasil increases the sudsing of liquid or paste potash soaps
- Kasil potassium silicates are good soil suspenders
- They prevent the redeposition of removed soil
- Kasil also prevents corrosion of iron and tin plate
- Kasil added to built liquid synthetic detergents increases solubility
- Kasil is compatible with phosphates



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SODIUM SILICATES • POTASSIUM SILICATES



Associates: Philadelphia Quartz Co. of Calif. Berkeley & Los Angeles, Calif., Tacoma, Wash.; National Silicates Limited, Toronto & Valleyfield, Canada. Distributors in over 65 cities.

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PQ PLANTS: ANDERSON, IND.; BALTIMORE, MD.; BUFFALO, N. Y.; CHESTER, PA.; JEFFERSONVILLE, IND.; KANSAS CITY, KANS.; RAHWAY, N. J.; ST. LOUIS, MO.; UTICA, ILL.



A wall chart and literature dispenser are part of the advertising campaign of Velsicol Chemical Corp., Chicago, billed as the "Chlordane Spectacular for 1961," centered around the lawn and garden dealer.

Velsicol Advertising Plans

Velsicol Chemical Corp., Chicago, has billed its advertising campaign as the "Chlordane Spectacular for 1961," which is centered around the lawn and garden dealer. This program, a three phase campaign, is free to dealers and designed to support brand name insecticides containing chlordane. The three phases are: crabgrass and lawn insect control in early spring; outdoor "patio pest" control during summer, and lawn insect control in the fall. In addition, there will also be a special program on household insects in leading southeastern markets.

The main effort of this year's campaign, the most extensive to date, will consist of approximately 600 advertisements in over 200 daily newspapers in 45 states. Supplementing the advertisements are new promotional and educational materials on household, lawn and garden insecticides.

The sales literature includes: a new dealer insect control reference manual, consumer folders, counter cards, literature dispenser, a mobile display, window streamers, and a large wall chart containing complete information on insect control.

Also scheduled are large ad-

vertisements in national garden and shelter magazines.

Macdonough Joins Sterwin

Appointment of E. Everett Macdonough, Jr., as manager — special accounts, of Sterwin Chemicals, Inc., New York, was announced recently by William X. Clark, vice-president. He will be a technical sales-service specialist, working closely with the research and development departments of major food manufacturers throughout the country.

Prior to joining Sterwin, Mr. Macdonough was associated with Chas. Pfizer & Co., Brooklyn, N. Y.

E. Everett Macdonough, Jr.



Reilly Corp. Merged

Republic Creosoting Co., Indianapolis, Ind., has merged its wholly-owned subsidiaries, Reilly Tar & Chemical Corp. and Char Products Co. The merged organization will be known as Reilly Tar & Chemical Corp. The wood preservation operations will function as a separate unit to be known as Republic Creosoting Company, division of Reilly Tar & Chemical Corp.

Geigy Appoints Odle

Geigy Agricultural Chemicals, division of Geigy Chemical Corp., Ardsley, N. Y., announced recently the appointment of D. L. Odle as its Iowa representative. Mr. Odle, an agricultural education graduate from Kansas State University, will make his headquarters in Des Moines.

Rand Heads Sales District

Charles Rand, Jr., has been named midwest district sales manager for the Warwick Wax division of Western Petrochemical Corp., New York, it was announced recently by Maurycy Bloch, president of Western.

Mr. Rand, to be located at the company's Chicago office, succeeds Lyle Christensen, recently named to head the firm's west coast sales district.

Prior to his appointment, Mr. Rand was with the Durez division of Hooker Chemical Co., Niagara Falls, N. Y.

Charles Rand, Jr.



a
step
in
the
right
direction

SC aromatic solvents

You move a significant step ahead of competition with high solvency SC Aromatic Solvents.

Among many desirable properties, they offer a wide variation in dry times and solvencies

which give them unusual versatility in your formulations. Uniformity from initial test to production is absolutely assured because SC Aromatic Solvents always start with the identical crude. Each run is carefully inspected through numerous quality-control check points until

final delivery to your plant. Call today for specific recommendations—SC Aromatic

Solvents are available for immediate delivery from 21 Solvents and Chemicals Group

plants and stock points in quantities to meet all your requirements.

properties of SC aromatic solvents

PRODUCT	Initial °F.	Dry °F.		Flash Point °F. (Closed Cup)	Speed Evap. Min.	Kauchi Butadiene Value	Aniline Point °F.	Specific Gravity (at 60°F.)	Lbs. Per Gal. (at 60°F.)	Aromatic Equiva- lent Content
SC Solvent #1	211	240	116	30	2.5	86.4	+ 1	.8259	6.88	74%
SC Solvent #1-A	202	235	113	25	2.5	67	+ 48	.8003	6.66	52%
SC Solvent #2	270	308	153	81	14.0	80	- 2	.8418	7.01	76%
SC Solvent #2-B	277	370	188	81	21.5	75	+ 12	.8388	6.99	68%
SC Solvent #3	356	400	204	135	64.0	72	+ 24	.872	7.26	69%
SC Solvent #28	329	379	193	122	51.0	73	+ 14	.8597	7.16	74%
SC Solvent #100	321	351	177	115	21.0	93.2	- 37	.8708	7.25	96%
SC Solvent #150	369	412*	211*	152	98.0	91.8	- 26	.8899	7.41	96%
SC Solvent #450	450	588*	309*	212	750	73	+ 10	.9279	7.73	

*End Point

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THE SOLVENTS AND CHEMICALS GROUP, 2540 W. FLOURNOY STREET, CHICAGO 12, ILLINOIS

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 Dallas, FEDERAL 1-5428 • Detroit, WALnut 1-6350 • Erie, Glendale 6-3951 • Fort Wayne, Anthony 0213
 Grand Rapids, CHerry 5-9111 • Houston, ORchard 2-6683 • Indianapolis, MEIrose 8-1361 • Kansas City, CHEstnut 1-3223
 LaCrosse, 2-3011 • Louisville, EMerson 8-5828 • Milwaukee, GREENFIELD 6-2630 • New Orleans, VErnon 3-4666
 Rochester, LOCust 2-5980 • St. Louis, GAffield 1-3495 • Santa Fe Springs (Los Angeles), UNiversity 4-7711 or SPruce 3-3628
 Toledo, JEFFerson 6-3771 • Windsor, Ontario, Clearwater 2-0933

OM Names Schrauf

B. N. Schrauf last month was named director of marketing for the organic chemicals opera-



B. N. Schrauf

tion of Olin Mathieson Chemical Corp., New York. He succeeds L. E. Russell, who has resigned.

Mr. Schrauf joined Olin Mathieson in 1952 as a technical representative in Baltimore. He became manager of market research in 1955, and in 1957 was named sales development manager for the organic chemicals division. Mr. Schrauf previously worked for National Distillers Chemical Co., Ashtabula, O., and Dow Chemical Co., Midland, Mich.

—★—

EWRT Elects Anne Lyng

Miss Anne Lyng, associate director of home economics, Procter & Gamble Co., Cincinnati, was elected national president of the Electrical Women's Round Table at its eighth annual conference held recently.

—★—

New Wyandotte Plant

Wyandotte Chemicals Corp., Wyandotte, Mich., opened its first eastern plant recently, at Washington, N. J.

The new facility will be used for the production of Wyandotte's line of polyether products, including "Pluronic," "Tetronic" and "Pluracol" compounds. These products are used in making synthetic household cleaning and washing products, and in the manufacture of flexible and rigid poly-

urethane foams, elastomers and coatings.

Lloyd Fisher is manager and Burnett Eddy, Jr. assistant manager of the plant.

—★—

New Scent by Aromatic

Aromatic Products, Inc., New York, recently introduced a new, modern, French bouquet type fragrance called "Matalia." Suggested for use in varying formulations in liquid soaps and detergents, air deodorants, insecticides and aerosols, the price is \$3.50 per pound, in five pound lots.

—★—

New Antara Reps.

Antara Chemicals, a division of General Aniline & Film Corp., New York, recently appointed three distributors for two of its major chemical product lines.

Under this new arrangement, Hoosier Solvents and Chemicals Co., Indianapolis, Ind.; Central Solvents and Chemicals Co., Chicago; and Wisconsin Solvents and Chemicals Co., Milwaukee; will handle certain "Igepal" surfactants and the "Cheelox" chelating and sequestering agents throughout Indiana, northwestern Indiana—northern Illinois—eastern Iowa, and Wisconsin and upper Michigan, respectively.

Air Reduction Consolidates

Activities of Air Reduction Co., New York, in the industrial chemical field, have been consoli-



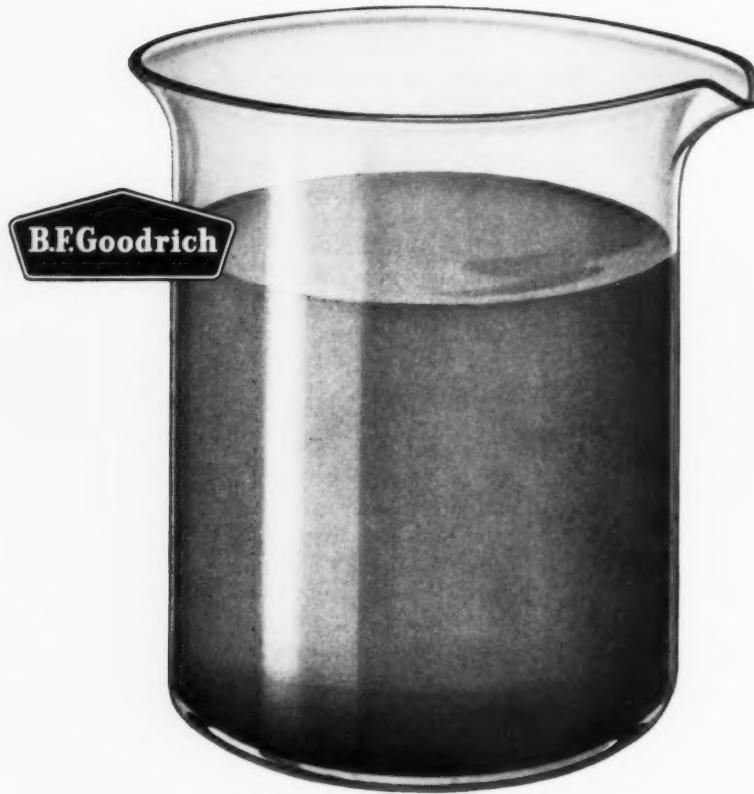
G. R. Milne

dated into a single unit, it was announced recently by John A. Hill, president. Air Reduction Co., Colton Chemical Co., and National Carbide Co., now form a new division known as Air Reduction Chemical and Carbide Co.

Sale of polyvinyl acetate emulsions will continue to be handled by Colton polymers department. Vinyl monomers and other acetylene chemicals will be marketed by the organic chemicals department. Both departments will market "Vinol" polyvinyl alcohol.

Dr. Robert Henry Marriott, (center), director of products research, County Laboratories, Ltd., England, recipient of the 1960 Medal Award of the Society of Cosmetic Chemists, at a recent visit to the research and development laboratories of Old Empire, Inc., Newark, N. J. private label and contract packing firm. Showing Dr. Marriott the facilities are, left to right: Ellis N. Reyner, technical director; John D. Horn; Dr. Marriott; Claude S. Welton and John De Elorza, president.





How Carbopol improves emulsion stabilization

Carbopol water soluble resins are earning an outstanding reputation for emulsion stabilization. You can also use them to control viscosity. Even the high viscosities are easy to pump or spread. Efficiency is outstanding—as little as 0.1% provides permanent stability.

Recent data on emulsion stabilization shows that Carbopol can also produce suspension results far out of proportion to its effect on viscosity. The analysis of this work proposes—as an independent control mechanism—the concept of "yield value". This rheological concept can be used two ways: either to improve stabilization of present emulsions or to make permanent suspensions, simplifying development of new products. This is achieved by using Carbopol to exceed the critical yield value of the water phase. High viscosity is no longer a requirement.

For complete information about this analysis, or about how Carbopol improves stabilization in other ways, write Dept. PC-1, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

Carbopol
Water-Soluble Resins

B.F.Goodrich Chemical Company

a division of The B.F.Goodrich Company

Officers of the new division are: G. R. Milne, president; B. R. Krashin, vice-president, marketing; R. T. Lund, vice-president operating; R. A. Speck, vice-president, distribution; J. M. Timmon, vice-president, engineering; F. E. Evers, controller. C. J. McFarlin, president of Air Reduction Chemical Co., will join the corporate toward planning group.

Avon Changes Personnel

Avon Products, Inc., New York cosmetics firm announced recently the following personnel changes. Wayne Hicklin has been named to the newly created position of senior vice-president. Norman Chadwick was appointed vice-president in charge of sales, succeeding Mr. Hicklin.

Clifford Winton was named vice-president in charge of merchandising and promotion; George McGowan was also appointed a vice-president. Hays Clark was named vice-president for international operations and Wilbur R. Shook was appointed treasurer.

Packaging Films

(From Page 135)

ture of the water is lowered, the rate of solubility correspondingly decreases. In normal household laundry applications, where water temperatures of less than 90°F. are rarely encountered, solubility rates have been satisfactory.

Where lower temperatures are experienced, such as in the typical bowl cleaner applications, solubility is marginal. When subjected to more stringent tests wherein the film is conditioned at very low humidity, low temperature flexibility is satisfactory down to 0°F. The higher the humidity, the better the low temperature flexibility characteristics.

In support of our research and development objectives, we have available both laboratory and pilot equipment to permit experimental studies in the processing of PVA resins. For testing these



Warren R. Godfrey, left, first winner, is presented the new "Salesman of the Year" trophy by John L. Cassullo, president of Fritzsche Brothers, Inc., New York, 90 year old essential oil and chemical firm. The trophy will be awarded annually to the most deserving member of its sales staff.

resins, which are cast into film, we also have available a pilot band-caster.

In the interest of lowering costs, we have programmed the development of lighter gauge film. To accomplish this, while maintaining adequate strength, we shall explore orientation of PVA water soluble films and basic improvements of manufacturing methods. This is now possible through our pilot plant and other experimental equipment.

Principal assets in the Reynolds research and development program are founded on recently acquired proprietary rights in the processing of PVA resins, the installation of various pilot plants, and addition of laboratory equipment designed to permit continued development in this area.

Although not at liberty to discuss details we can confidently predict further improvements stemming from better techniques in resin processing, control of by-product plasticizers, studies of molecular weight control, etc.

Summary

We have worked on water soluble films continuously since

1948, and have established a wealth of experience in this field. We have expanded our production facilities in advance of the anticipated market growth, and our product development equipment and personnel have been enlarged to further accelerate development and technical support of our customers.

We look forward to a substantial growth in applications of water soluble films in the near future and intend to both stimulate and fully support this market.

Hazardous Substances

(From Page 56)

highly toxic), corrosive, irritant, strong sensitizers, substances capable of generating pressure through heat, decomposition or other means; and substances that are flammable or extremely flammable solids; or are extremely flammable or flammable substances in self-pressurized containers as contemplated in this act will be given in regulations to be published in the Federal Register.

"Thus, compliance with the provisions of the act by February 1, 1961, is not practical for those

hazardous substances lacking precise definitions."

The commissioner explained that a substance may be found to be highly toxic because of human experience even though it will not meet the animal test definition. Substances that have shown themselves to be highly toxic and hazardous by human experience are methyl alcohol, and carbon tetrachloride. Such substances that have, by human experience, been

demonstrated to cause serious injuries, shall be considered highly toxic under the new law, even though not meeting the animal test prescribed in the act and must bear the labeling specified for highly toxic substances.

The Federal Caustic Poison Act remains in full force and effect during the extension as to any article affected by the extension.

The Food and Drug Administration urged manufacturers

to utilize the time between now and August 1 to bring their products into full compliance with the Act. A number of manufacturers already have taken steps to comply with the new law, according to the agency.

The new act will be implemented through a combination of regulatory and educational activities. Voluntary compliance will be sought in every way possible.

There are a quarter of a million different brand name household chemical products available for the pantry, medicine cabinet, basement, garage and elsewhere around the home, according to FDA. The new law provides for cautionary labeling, together with information as to the composition of these products, a statement of the principal hazard or hazards, precautionary measures to be taken, instructions, when necessary, for emergency treatment in case of misuse and instructions to keep the articles out of the reach of children.

The required warning labeling must be prominently and conspicuously placed on the containers under the new law, FDA said.

Aerosol Quality Control

(From Page 105)

such as methanol which is then titrated with Karl Fischer reagent. A dead stop or other potentiometric method is frequently used to detect the end point.

Summary

In conclusion, the quality controls for propellants and propellant systems presented here provide the aerosol filler with a program for effective inspection beginning with the receipt of raw materials through the various production phases to the finished product. The tests at each phase must be carefully appraised and selected in accord with the requirements of the individual products. In the final analysis the value of these procedures must be demonstrated

At your fingertips... a world of scent and flavor



OIL CARDAMOM
OIL CASCARILLA
OIL CELERY
OIL OLIBANUM
OIL OPOPOXAN
OIL ORRIS
OIL SANDALWOOD
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Factory: Patchogue, Long Island
Representatives: Waukesha, Wis., Shreveport, La.,
Old Saybrook, Conn., Toronto

through the results of a continuous product shelf life program.

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Products & Processes

(From Page 173)

germicidal efficiency combined with good shelf life:

	%
Trichloromelamine	22
Monosodium dihydrogen phosphate	10
Citric acid	56
Wetting agent	12

First mix thoroughly builder and wetting agent, then add TCM, slowly blending it into the mixture with continued agitation. Blend should then be micropulverized. Detailed handling instructions and other pertinent information are covered in the bulletin.

Aerosol Patents

(From Page 157)

ing an upper surface presented flatwise beneath and against the bottom of the mounting cup and extending to the radially outer side of the mounting cup wall and thence upwardly between the inner side of the container mouth and the portion of the mounting cup wall which conforms thereto, said masklike portion being held stretched and tensioned by that portion of the mounting cup which extends radially beyond the inner radius of the container mouth, together further with valving mechanism within and supported by the central bore of the principal part of the valve body.

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EMULSIFYING AGENTS

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Volume 1, Number 3, pp. 69-171 appeared July 27, 1960 and contains the following: "Swarming and Mating in Mosquitoes," by Erik Tetens Nielsen and James S. Haeger. "A Revision of the Genus *Chlaenius* Bonelli (Coleoptera, Carabidae) in North America," by Ross T. Bell. Single copy, \$6.00.

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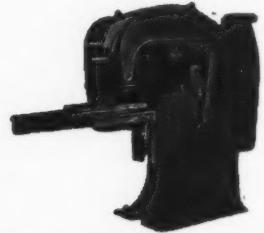
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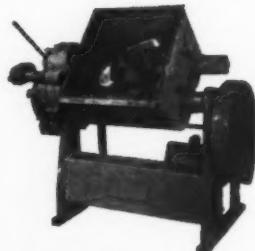
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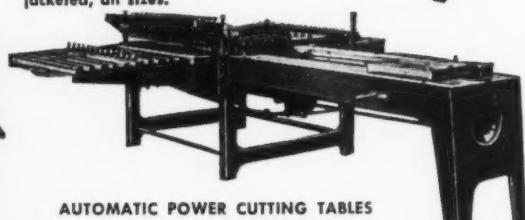
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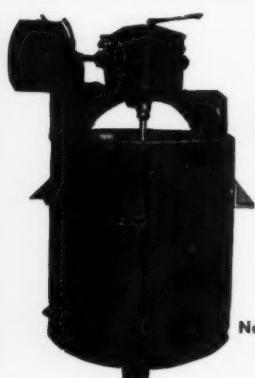
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(Turn to Page 207)

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(Turn to Page 209)

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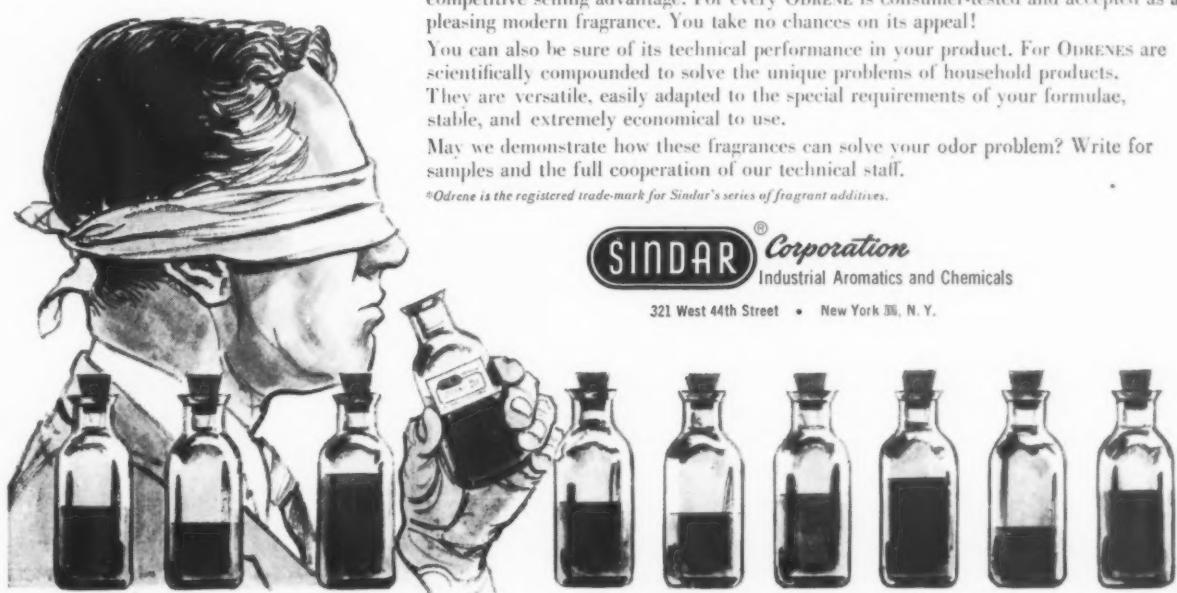
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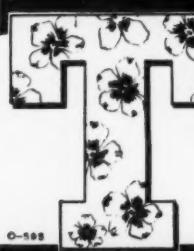
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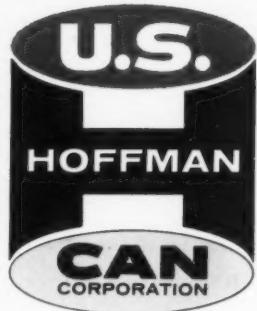


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See Announcement on Page 206

Soap Assn. Elects Hoerner (Continued from Page 54)

Turning from the trend to combination bars, Dr. Mayhew mentioned liquid all-purpose cleaners as examples of combination products, containing soap, synthetic detergents (usually of the nonionic type) phosphates and other ingredients such as pine oil, solvents, etc.

In conclusion, Dr. Mayhew suggested that soap/syndet heavy duty combinations might provide a partial answer to the problem of detergents disintegration in sewage.

The question of biodegradability characteristics in relation to new detergent trends was raised in the discussion following the five formal presentations. Dr. Stayner foresaw this question as a powerful factor influencing the choice of detergent raw materials. He pointed out that oxo or fatty alcohol sulfates are "biologically soft," in some instances requiring only



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hours for biological degradation, in others a few days. Alkyl benzene sulfonates are biologically hard, some of them requiring weeks for degradation, whereas straight chain alkyl sulfonates are of intermediate biological softness, according to findings by a committee on detergents disposal appointed by the British Government. Adequacy of sewage disposal plants was cited as a paramount factor influencing the severity of the problem.

The theme, "Building Local Good Will For Your Company," was considered during a panel discussion moderated by John H. O'Connell, Hill & Knowlton, Inc., New York. Edgar S. Nelson, General Foods Corp.; James L. Macwithey, Bristol-Myers Co.; Clarence J. Dover, General Electric Co., and George H. Baker, Wyandotte Chemicals Corp., were panelists.

The meeting consisted of four formal presentations on the subjects of special events, corporate giving, communications with employees, and the use of a public

opinion survey — followed by a general discussion, including audience participation. The use of special events was described by Mr. Macwithey. Community relations must be a broad, continuous program that encompasses many activities and groups, he stated.

Mr. Nelson spoke on developing a contributions program in the community. Corporate giving, he observed, is one of the most important community responsibilities management faces in any community. He stated a contributions program should be based on community needs, relationship of company to community, and on the programs of other comparable companies in the area.

In the area of community relations, Mr. Dover stated that the theory "silence is golden," is dead. It is no longer enough simply to be a good corporate citizen and do good deeds. Those good deeds must be communicated energetically to the public. He offered this equation for effective community rela-

tions: good corporate citizenship — plus effective communication — equals community approval.

Mr. Baker stressed the dangers of a lack of public relations. He explained that Wyandotte Chemicals Corp., for 65 years a family owned firm, did little to promote the corporate image or even attempt to communicate its affairs to the public. Although over the years the owners of the company had given the city its hospital, library and other community facilities, the net result was a belief by the community that the company made nothing but smoke, smells and money. A public opinion survey was designed, slanted toward community problems, Mr. Baker said, with results made public in the local papers. Thus, the company obtained an attentive audience, stimulated public recognition of the firm's broad interest in the community, and laid the foundation for a long-range community relations program.

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Puritan Aerosol
(From Page 149)

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Research and development has always played an important role in the firm's customer service program. In the past year, it has been stressed even more. Under Theodore A. Thonet, who has applied for several aerosol patents, the research staff occupies a modern, well-equipped laboratory in the main Boston plant. In addition to investigation of special customer problems, the department recently has been engaged in research on cosmetic and pharmaceutical products as well as powdered aerosols and chemical specialties.

Management's Role

Assisting Mr. White in administrative details is Joseph J. Winer. With Puritan since the pre-aerosol era, Mr. Winer has played an important part in the company's growth. In addition to other ad-

ministrative duties, Mr. Winer is in charge of purchasing and customer service.

William Helfron supervises production operations and maintenance of quality control during the actual filling and packaging. A graduate chemist, Mr. Helfron was formerly with G. Barr & Co., Chicago, and headed aerosol production for Revlon, Inc., New York.

Richard H. Daley, the newest member of the team, is controller. Mr. Daley is responsible for development of new accounting systems, including cost and inventory control as well as overall office procedures.

An example of the careful selection of management personnel is David C. Arndt. In charge of sales development, Mr. Arndt is thoroughly familiar with the problems of the aerosol marketer. He formerly served with the propellant marketing group of Union Carbide, calling on fillers and marketers of aerosol products throughout the country.

Dave Arndt is typical of the men chosen to run Puritan. They all possess a thorough knowledge of their field, are energetic and imaginative. Their combined resourcefulness, and their ability to provide necessary technical and marketing assistance has paid off

in a mushrooming growth.

Among its customers, Puritan lists such firms as Boyle-Midway and Fuller Brush Co.

According to Harvey White, this is only the beginning. ■

New Animal Repellent

Development of a weather-resistant contact animal repellent was announced recently by Pennsalt Chemicals Corp., Philadelphia. This specially formulated stable suspension designated "Penco Thiram Animal Repellent," was developed by Pennsalt's Agricultural Chemicals Division in cooperation with the Weyerhaeuser Company's forestry research center at Centralia, Wash.

The repellent, containing thiram, is designed for use on forest nursery planting stock, fruit trees, ornamental plants and nursery stock for protection against rabbits, meadow mice and deer. The repellent may be applied either during the dormant or growing seasons and is formulated and ready mixed for further dilution with water for spray, dip or brush application. A single application, when applied as directed, is claimed to protect treated surfaces of plants from rabbit and meadow mice damage for six months or longer, depending on weather conditions.

List of Surfactant Manufacturers
(From Page 64)

Quaker Chemical Products Corp., Conshohocken, Pa.
Reilly-Whiteman-Walton Co., Washington & Righter St.,
Conshohocken, Pa.
Robinson Wagner Co., Inc., Mamaroneck, N. Y.
Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.
Sandoz, Inc., 61 Van Dam St., New York 13, N. Y.
Scher Brothers, P. O. Box 538, Allwood Station, Clifton, N. J.
Scholler Bros., Inc., Collins & Westmoreland St., Philadelphia 34, Pa.
Security Chemicals, P. O. Box N, Greggton 1, Texas
Stanson Chemicals Co., 856 River Rd., Edgewater, N. J.
Stepan Chemical Co., 427 W. Randolph St., Chicago 6, Ill.
(Ninol Lab. Inc. & Maywood Chem. Works are both divisions of above).
Sun Chemical Corp., 750 Third Ave., New York 17, N. Y. (See
Warwick Chemical Co.)
Sun Oil Co., 1608 Walnut St., Philadelphia 3, Pa.
Surfact-Co., Inc., Box 114, Blue Island, Ill.
Wye Industries, 6 General Devine Way, Boston 27, Mass.

Tennessee Corp., P. O. Box 2205, 617 Grant Bldg., Atlanta, Ga.
Tex-Chem Co., 20-21 Wagaraw Rd., Fair Lawn, N. J.
Textilana Corp., 12607 Cerise Ave., Hawthorne, Calif.
Ultra Chemical Works, Inc., 2 Wood St., Paterson 4, N. J.
(A div. of Witco Chemical Co.)
Universal Chemicals Corp., Central Falls, R. I.
Utility Chemical Co., 145 Peel St., Paterson 4, N. J.
(P. O. Box 1659 Paterson 16, N. J.)
Van Dyke & Co., Inc., Main & William St., Belleville 9, N. J.
Vestal, Inc., 4963 Manchester Ave., St. Louis 10, Mo.
Warwick Chemical Co., Wood River Junction, R. I. (A division of Sun Chemical Corp.)
Wico Chemical, Inc., P. O. Box 506, Old Concord Rd., Charlotte, N. C.
Wilson Martin, a division of Wilson & Co., Snyder Ave. & Swanson St., Philadelphia 48, Pa.
Winthrop Laboratories, 1450 Broadway, New York 18, N. Y.
(A subsidiary of Sterling Drug, Inc.)
Witco Chemical Co., 122 E. 42nd St., New York 17, N. Y.
(See also Ultra Chemical Co., a subsidiary of)
Wolf, Jacques, & Co., Passaic, N. J. (A div. of Nopco Chem. Co. which see.)
Woonsocket Color & Chemical Co., 179 Sunnyside Ave., Woonsocket, R. I.

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COMING MEETINGS

American Chemical Society, national meeting, St. Louis, Mo., March 21-30.

American Oil Chemists' Society annual meeting, Sheraton-Jefferson Hotel, St. Louis, May 1-3, 1961; fall meeting, Pick-Congress Hotel, Chicago, Oct. 30-Nov. 1, 1961.

American Society of Perfumers, seventh annual open symposium, Essex House, New York, April 13.

Chemical Specialties Manufacturers Association, 47th mid-year meeting, Drake Hotel, Chicago, May 15-17, 1961; 48th annual meeting, Roosevelt Hotel, New York, Dec. 4-6.

Chicago Chapter, Society of Cosmetic Chemists, Feb. 14, March 14.

Committee D-12 (ASTM) on Soaps and Other Detergents, annual meeting, Park Sheraton Hotel, New York, March 6-7.

Drug, Chemical and Allied Trades Association, annual meeting, Pocono Manor Inn, Pocono Manor, Pa., Sept. 14-17, 1961.

Folding Paper Box Assn. of America, annual meeting, Drake Hotel, Chicago, March 20-22.

National Chemical Exposition, Amphitheater, Chicago, Sept. 5-8, 1961.

National Packaging Exposition and Conference, Exposition Center, Chicago, April 10-14, 1961.

National Premium Buyers Exposition, 28th annual show, Navy Pier, Chicago, April 10-13.

National Sanitary Supply Assn., 38th annual convention, Conrad Hilton Hotel, Chicago, April 23-26, 1961.

New York Premium Show and Premium Advertising Conference, New York Coliseum, Sept. 25-28, 1961.

Packaging Machinery Manufacturers Institute, (PMMI) fourth annual show, Cobo Hall, Detroit, Nov. 7-10, 1961.

Toilet Goods Association, 26th annual meeting, Waldorf-Astoria Hotel, New York, May 9-10-11, 1961.

Synthetic Organic Chemical Manufacturers Association, monthly luncheon meetings, Roosevelt Hotel, New York, Feb. 16; March 14; April 13; and June 13; annual spring outing, Skystop, Pa., May 22-24.

Western Agricultural Chemicals Association, Disneyland Hotel, Anaheim, Calif., March 13-15.

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* * * *

2. Detergent Evaluation and Testing by Jay C. Harris.

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* * * *

3. Soap Manufacture by Davidson, et al.

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tale ends

"D R. Albert Calvin, executive secretary of the Association Detergence Internationale", mystery guest speaker at the annual banquet of the Soap Assn. last month, was quickly spotted by the more knowledgeable people in the audience as Al Kelley, the well-known maestro of double talk. For the rest of us, it took a little longer.

* * * * *

Leon Miller, widely known throughout the chemical specialties business, when he was associated with the Barrett Division, later the Plastics and Coal Chemicals Division of Allied Chemical Corp., New York, was aboard the Portuguese cruise ship, *Santa Maria*, when it was hijacked in the Caribbean Jan. 23. Leon's friends in the chemical biz, from which he retired last year, are patiently waiting to get all the details. It sounds like the sort of adventure Leon would enjoy and relish telling about.

* * * * *

Is it true that one of the larger soap outfits sent around a form recently to all purchasing department personnel requesting them to state whether they have more than a three per cent interest in any of the firms from which they are buying raw materials?

* * * * *

In the recently published book, "Japanese Inn", the author, Oliver Steller, points out that the newspapers of Emperor Hirohito are bathed in disinfectant and then ironed dry by maids before they are given to him. Probably the bathing routine will be done away with as soon as his nibs hears about new "Permacem" spray.

* * * * *

Ward Ross, director of the Wisconsin Alumni Research Foundation, made the front page of the *Wall Street Journal* early this month in a feature article on research projects for industry carried on at universities. The article mentioned the discovery and development of Warfarin at W.A.R.F. Also quoted in the article was John Stoddard, vice president of Prentiss Drug & Chemical Co., New York, whose firm is licensed to market Warfarin as a rodenticide. A new synergist that will restore DDT to its pre-resistance status as a bug killer was also mentioned as a development of Wisconsin Alumni Research Foundation.

* * * * *

Lest it pass unnoticed, the retirement of Joe Tomlinson as chairman of the Aerosol Marketing Development and Publicity Committee of the Aerosol Division of Chemical Specialties Manufacturers Assn. should not be without some sort of salute. Joe, as anyone who has ever attended even one of these meetings knows, has tritely, but truly, been a hard working chairman. Probably his

most widely noted feat was the aerosol supermarket at the CSMA annual meeting at the Hotel Commodore in New York a couple of years ago. Joe stayed up all night to get the supermarket set up. Succeeding Joe will be Gus Lawrence of du Pont, another hard worker. Incidentally, Joe continues to serve CSMA, now as a three-year member of the association's Board of Governors.

* * * * *

Calling attention to accidents before they happen! That's the plan in effect at the African plant of Lever Brothers at Durban. They use small cards printed as follows: "That was a near thing! Do you realize that what you did a few moments ago could have caused an accident? Please accept this card as a friendly safety reminder and when you see someone else flirting with danger, pass the card on to him or her. Sign the other side first and make an effort to avoid getting another card."

* * * * *

The prisoners at the Nebraska State Penitentiary will have their opportunity come next March of making their own soap and cleansers. The news is that \$80,000 worth of soapmaking equipment is being installed in a converted warehouse at the penitentiary and that manufacturing operations will begin in

the spring. Our prediction based on many years of observation of prison-operated soap projects is that no money will be saved, nor will enough work be given enough prisoners to justify an investment of even \$80,000.

* * * * *

Revlon, Inc., has recently contracted with the Brady Food Service Corp., New York, to supply its 2,000 factory employees with meals and snack service at the Revlon New Jersey plants. Brady also handles food service for the Union City, N. J. plant of Yardley of London and the Morristown, N. J. plant of The Mennen Company. In fact, Brady supplies food to 17,500,000 people a year in industrial plants, offices, hospitals, colleges, etc.

* * * * *

Chemical cleaning of plant equipment and the materials used for this purpose to prevent rust, corrosion and fouling are still in the horse-and-buggy stage, according to Charles M. Loucks, consulting chemist of Westlake, Ohio, in a paper presented before the American Society of Mechanical Engineers recently. Plant equipment has been improved greatly over the past several decades, he said, but methods and materials for keeping it clean and in trouble free operation haven't changed in 20 years.

Harry Parness, (left) vice-president in charge of sales for J. B. Williams Co., New York, was host at a luncheon for the Lennon sisters (left to right) Cathy, Janet and Peggy in New York recently.

The Lennon Sisters are starred on "The Lawrence Welk Show," Saturdays, 9 to 10 PM, EST on the ABC-TV Network, sponsored by "Geritol" and "Sominex."



